

BlueFlyersTM TM

Bluetooth Flyers



Product of

Embedded Solutions, Inc
www.BlueFlyers.com

R91007G

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WARNINGS

- Read the eBox 2300, AIRcable Host XR, TRENDnet TBW-104UB, and C.Crane FM transmitter manuals for complete safety instructions.
- Operating the AIRcable Bluetooth transmitter without the external antenna connected may result in damage to the unit.
- The BlueFlyers unit is not intended for use outdoors. Exposing the unit to rain or moisture may result in electrical shock or fire hazards or damage to the equipment.
- Never install the BlueFlyers unit in wet locations.
- Opening the BlueFlyers unit, Bluetooth transmitter, or FM transmitter housings may result in electrical shock.
- Never touch un-insulated terminals or wires.
- USB connectors are not supplied with Limited Power Sources.

MANUFACTURER CERTIFICATIONS

BlueFlyers Base Unit

FCC Class A Note

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference in which case the user will be required to correct the interference at his own expense. Testing was done with shielded cables. Therefore, in order to comply with the FCC regulations, you must use shielded cables with your installation.

Warning

This product complies with EN55022 class A. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and

(2) this device must accept any interference received, including interference that may cause undesired operation.

This digital apparatus does not exceed the Class A limits for radio noise emissions from digital apparatus as set out in the interference - causing equipment standard entitled "Digital Apparatus", ICES-003 of the Department of Communications.

Manufacturer's Declaration Of Conformity

This equipment has been tested and found to comply with the requirements of European Community Council Directives 89/336/EEC and 73/23/EEC relating to electromagnetic compatibility and product safety respectively.

Attention

This product has been designed and certified to comply with certain regulatory requirements pertaining to Information Technology Equipment. This product has not been designed for use as a medical device. Without limitation of the foregoing, this product is not intended and has not been certified for use in a hospital or clinical environment to diagnose, treat, or monitor patients under medical supervision, and is not intended and has not been certified to make physical or electrical contact with patients, nor to transfer energy to or from patients and/or to detect such energy transfer to or from patients.

AIRcable Bluetooth Transmitter

Certifications

- Bluetooth Certified (BQB)
- Bluetooth 2.0 compatible with 802.11b tolerance (AFH)
- FCC authorization 15C
- CE certification

TRENDnet Bluetooth Transmitter

Certifications

- Compliant with Bluetooth v2.0 Specification with EDR (Enhanced Data Rate) support
- Backward compatible with Bluetooth v1.1 and v1.2 devices
- Compliant with Class I Bluetooth Operations
- CE, FCC

FM Transmitter

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions.

1. This device may not cause harmful interference, and
2. This device must accept any interference received, including interference that may cause undesired operation.

BLUEFLYERS OVERVIEW

BlueFlyers Concept

The BlueFlyers unit electronically transmits information directly to Bluetooth enabled cell phones, laptops, PDAs, Blackberries, or other portable devices. The Bluetooth advertisement can contain images, audio, video, business cards, Java applications, and more. Bluetooth marketing is proximity-based, and the choice of Bluetooth transmitters will determine the distance covered by the marketing effort.

The BlueFlyers unit can also transmit an FM broadcast audio message. The FM broadcast can be used to transmit instructions on how to access BlueFlyers from a cell phone, details about a daily special, or music. Multiple MP3 files can be put on the BlueFlyers unit for FM transmission and the unit will rotate through them.

About Bluetooth

Bluetooth uses a wireless connection protocol that allows devices to exchange data. This protocol is commonly built into modern cell phones and PDAs, and many laptops. If not present, Bluetooth capability can easily be added to many of these devices using a small external Bluetooth transmitter.

Bluetooth is in common use today in wireless headsets, allowing hands-free use of cell phones. In addition to the voice connections, this protocol also allows the exchange of data files. These files can be images, audio MP3s, videos, text, Word documents, vCards (virtual business cards), or other formats.

BlueFlyers can transmit multiple file formats, including information in formats which give the prospect immediate access to vital information and long term access to detailed information.

Depending on the device and the format of the data transferred, the information may be usable immediately or may need to be transferred to a PC before use. For example, images may be viewable on cell phones and PDAs. Audio MP3s may be playable on newer cell phones and PDAs. A Word document would not be usable on a cell phone and would need to be transferred to a PC. Some cellular service providers purposely cripple the cell phone manufacturer's built-in Bluetooth functionality and limit file types that may be transferred over Bluetooth. Using a variety of file formats helps ensure the flyer is received.

Bluetooth transfers are not "high-speed". Devices that use early versions of the protocol are limited to a maximum of 721 kbps, while newer devices may support up to 3 Mbps. Transferring a 1MB file to an older device could take more than 10

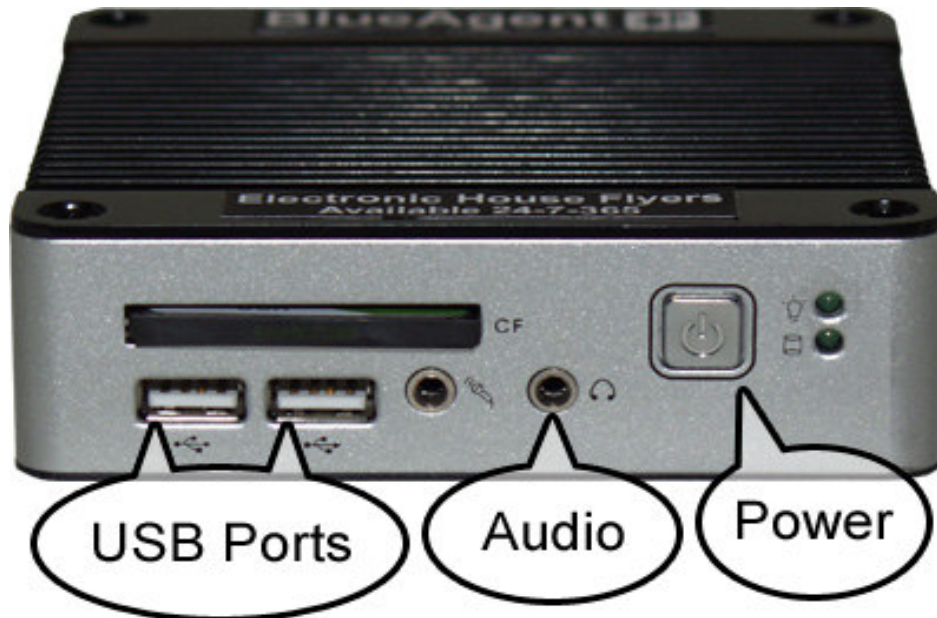
seconds. Some devices implement a size limit for file transfers; transferring reasonably sized files will help avoid reaching a device's limit.

Additional Bluetooth Information can be found at:

<http://www.bluetooth.com/>

<http://www.bluetooth.org/>

BlueFlyers Base Unit



Base Unit Front Panel (BlueAgent version shown)

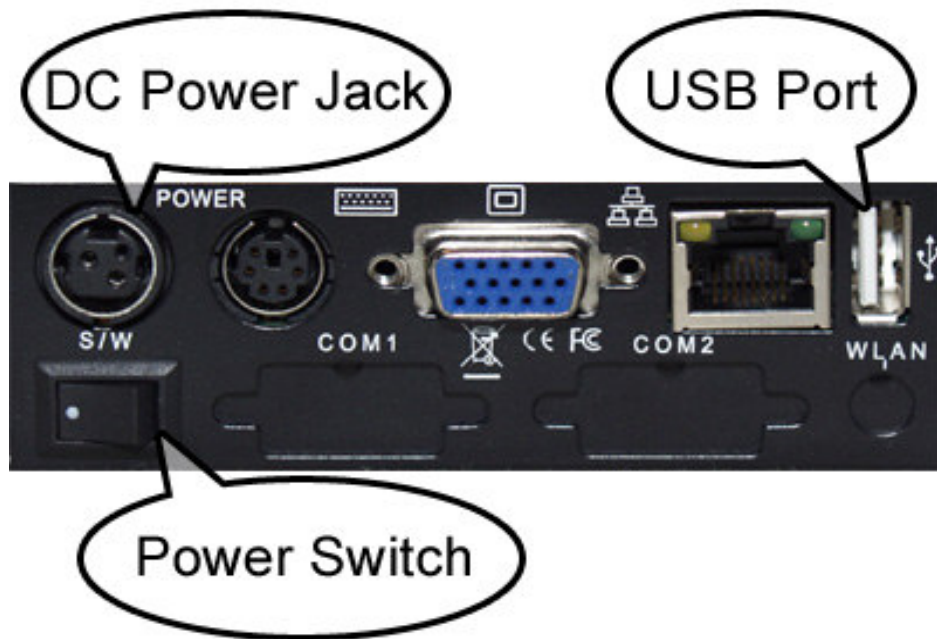
The BlueFlyers unit consists of a compact base unit, and a Bluetooth transmitter. Depending on the chosen Bluetooth transmitter, an external antenna may be required. An optional FM transmitter can be connected to the base unit via the audio output port on the front panel.

The BlueFlyers unit is highly portable. The base unit measures 4.5" x 4.5" x 1.4" and weighs 1.1 lbs. The AIRcable Bluetooth transmitter's enclosure measures 3.5" x 3" x 1", and the TRENDnet unit is even smaller at 2.8" x 1.4" x 0.44". BlueFlyers runs silently; it is fanless and uses a solid state hard drive.

There are two power buttons on the BlueFlyers base unit, a physical rocker switch located on the rear panel and a soft switch on the front panel. The physical switch on the rear panel must be in the 'ON' position for the unit to

operate. The soft switch on the front panel can be used to turn the unit on and off. The unit has an AC to DC power transformer built into its power cable. The AC end of the power cable plugs into a standard 120V AC outlet. The DC end of cable connects to the power jack on the rear panel of the base unit.

Neither of the Bluetooth transmitters requires a separate power connection.



Base Unit Rear Panel

There are two USB ports on the front of the unit and one on the rear of the unit. Any available USB port can be used for the AIRcable Bluetooth transmitter's USB cable. For the TRENDnet Bluetooth transmitter, a USB port should be chosen so that the transmitter's built in antenna can be extended vertically.

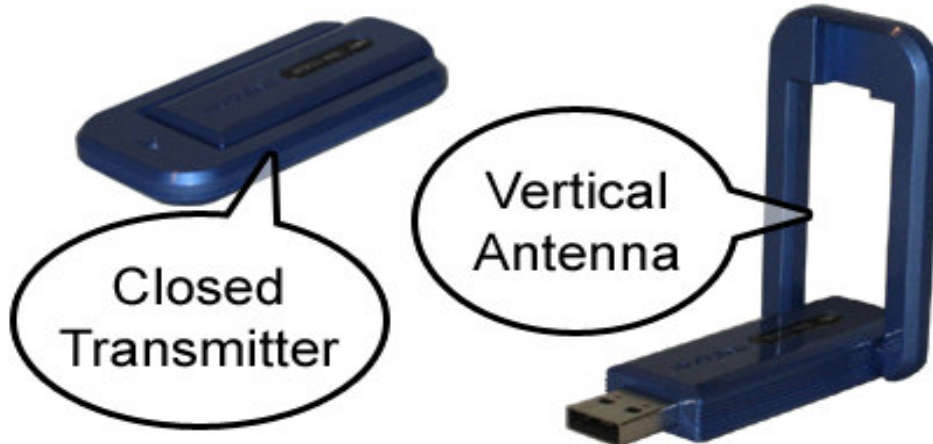
The BlueFlyers unit is shipped with a demonstration advertisement installed, but must be configured to transmit the desired advertisement flyer. Files are transferred to BlueFlyers via the provided USB flash drive. The USB flash drive can be plugged into any available USB port on the base unit.



Example Flash Drive

The CompactFlash (CF) card installed in the front of the BlueFlyers unit is not removable. Attempts to do so may cause damage and void the warranty.

TRENDnet Bluetooth Transmitter

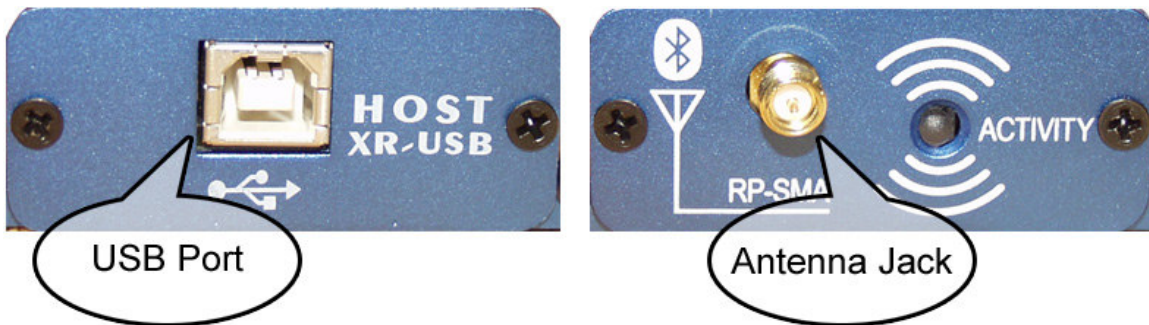


TRENDnet Bluetooth Transmitter

The TRENDnet Bluetooth transmitter connects to the base unit via a USB port. Select a USB port that allows the antenna to be extended vertically. Power is provided to the transmitter over USB and no other power connection is required for the transmitter.

AIRcable Bluetooth Transmitter

WARNING: NEVER OPERATE THE AIRCABLE BLUETOOTH TRANSMITTER WITHOUT THE EXTERNAL ANTENNA CONNECTED OR DAMAGE MAY OCCUR TO THE UNIT.



AIRcable Bluetooth Transmitter Front and Rear Panels

The optional AIRcable Bluetooth transmitter connects to the base unit using the USB cable (provided). Plug one end of the USB cable into the transmitter and the other end into the base unit. The antenna connects to the RP-SMA antenna jack on the transmitter. Power is provided to the transmitter over the USB cable and no other power connection is required for the transmitter.

Cell Phones

Customers will typically use a cell phone to download the BlueFlyers' electronic advertisement. The functionality provided by cell phones may be limited by the phones manufacturer or by the cellular service provider. Some Bluetooth enabled phones will only accept virtual business cards or vCards. Other phones will accept audio files also, but not images. Some camera phones do not allow the owner to transfer pictures over Bluetooth to their computer. Capabilities will vary between cell phones.

Other Devices

Many laptops and PDAs are produced with built-in Bluetooth. These devices can take advantage of more media formats than the typical cell phone. Customers with these devices can also use the BlueFlyers' FTP transfer mode (described in the BlueFlyers Modes of Operation section below) if they desire.

FM Transmitter

The FM broadcast can be used to transmit instructions on how to access the BlueFlyers unit, details about a daily special, or music. Multiple MP3 files can be put on the BlueFlyers unit for FM transmission and the unit will rotate through them.

Software

A Windows application, *BlueFlyers Wizard*, is provided to create file sets for a marketing campaign, configure the BlueFlyers unit, and analyze logs. A free audio recording application, *Audacity*, is provided to aid in creating MP3 audio files for FM transmission.

BlueFlyers Modes of Operation

The BlueFlyers Wizard allows the selection of BlueFlyers' operating mode. Multiple modes may be enabled simultaneously; they are not exclusive.

Mode	Description
Passive	Passive mode is always enabled. In this mode, flyers are sent when customers initiate the Bluetooth contact. This mode waits for parties to show interest before sending the advertisement.
Active	Active mode is optional. In this mode, a request to send a flyer is made to all Bluetooth devices that are found within the BlueFlyers' transmit range. For each device found, only one request to send is made for a particular flyer's file set. Regardless of whether the recipient accepts or declines the flyer, they will not be asked again. Customers can still receive the advertisement using passive mode operation by initiating the request.
FTP	FTP mode is always enabled. This mode can be used by laptops. It is a passive mode that allows customers' devices to pull flyers from BlueFlyers rather than the BlueFlyers unit pushing ads to the devices. This is a one way connection that does not allow customers to push information to BlueFlyers, nor does it allow access to any other files on the BlueFlyers unit.
FM Broadcast	FM broadcast is an optional mode and requires the external FM transmitter. A BlueFlyers instructional audio file is provided with the sample flyer. This file may be used to provide instructions to customers. The optional FM transmitter provides digital frequency selection from 88.3 to 107.7 MHz.

USING BLUEFLYERS

Operation Overview

This section provides a summary of the operation of BlueFlyers and the BlueFlyers Wizard application. Detailed information is provided in the sections following this one.

Install the BlueFlyers Wizard application on a computer running the Windows operating system. This will create a BlueFlyers Wizard icon on the PC's Start Menu.

From the Start Menu, select the BlueFlyers Wizard application. The BlueFlyers Wizard walks through the creation of an advertisement's file set (flyer). These files will be stored on the PC.



Plug the provided USB flash drive into a USB slot on the PC. Use the BlueFlyers Wizard to select the BlueFlyers configuration desired and to save the selected flyer's file set to the flash drive.



Be sure to properly remove the USB flash drive from the PC (click on “Safely Remove Hardware” icon in the Taskbar) so that no files are lost. If Windows is not notified that the USB flash drive is about to be removed, then it may not write all files to the flash drive.

The flash drive can now be used to configure the BlueFlyers unit. Take the USB flash drive to the location of the BlueFlyers unit. Plug the flash drive into a USB slot on BlueFlyers. Turn the BlueFlyers’ power on or cycle its power if it is currently on.



When BlueFlyers finishes booting, it will check for files on the flash drive. The unit will copy the flyer’s files and the configuration files from the flash drive, and it will copy its current logs to the flash drive. When this operation is complete, the unit will produce a 1 second long beep at 800Hz. The flash drive may be removed from the unit after this beep.

The unit will then start the required applications. Once all applications are running, the unit will produce two short beeps that rise in frequency: the first at 440Hz for ¼ second, the second at 660Hz for ¼ second. The unit is now operational.

If an FM transmitter is being used, plug its mini-stereo plug into the BlueFlyers’ headphone output jack.

To review the logs that the BlueFlyers stored on the flash drive, plug the USB flash drive into the computer and use the BlueFlyers Wizard application to view the logs.

Repeat this process when a new advertisement flyer is to be loaded on to the BlueFlyers unit.

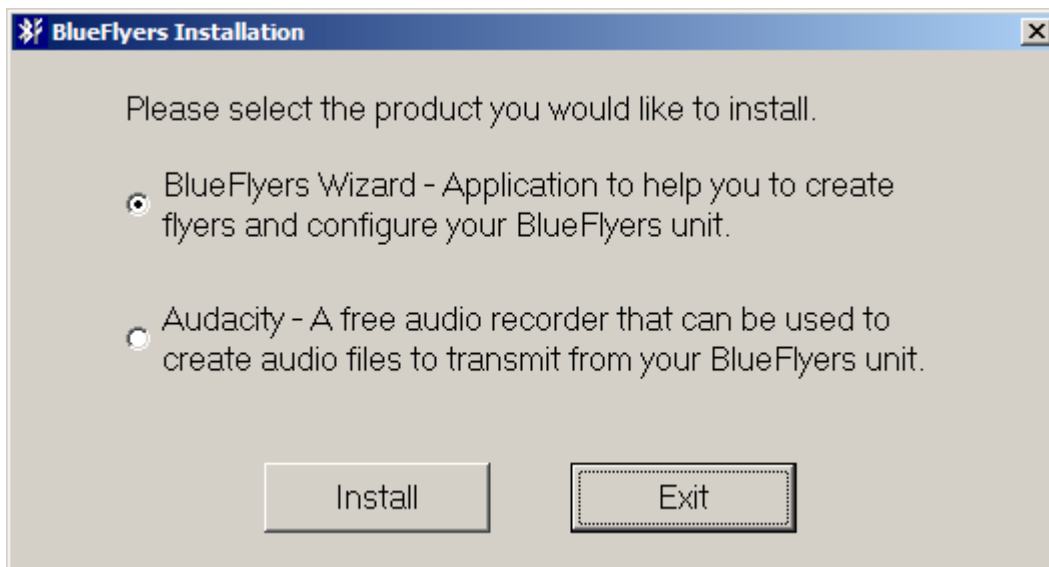
Software

Installation

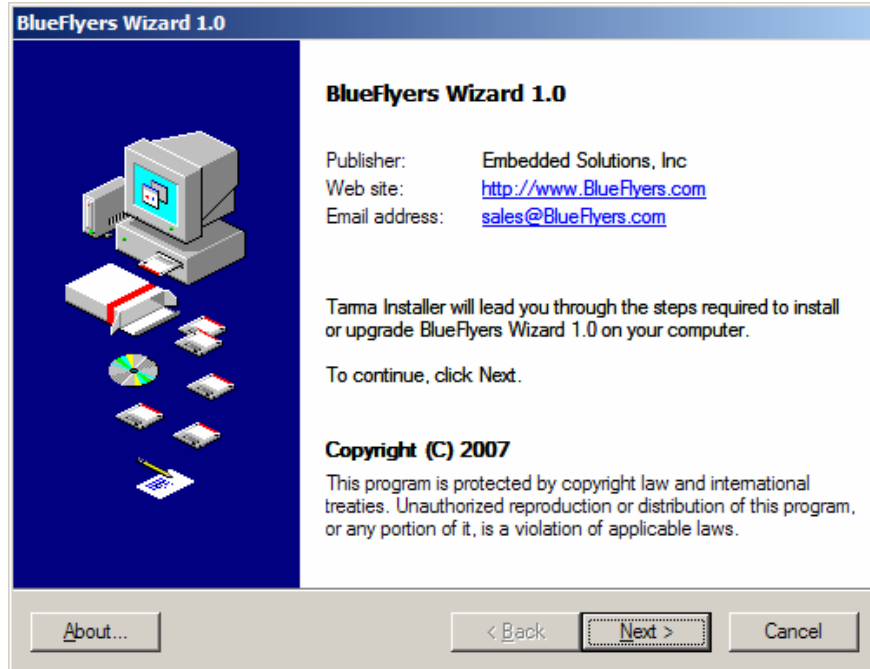
A CD is provided with the BlueFlyers Wizard application along with a free audio recording application called Audacity. Audacity is not covered by the warranty. Support for this application can be found at: <http://audacity.sourceforge.net/help/> Audacity may not be suitable for any particular use. It is provided as an option for recording audio files; however other programs may provide better results. Audacity requires the LAME MP3 encoder to be installed in order to save files as MP3s. Download links for LAME are provided on Audacity's website at <http://audacity.sourceforge.net/help/faq?s=install&item=lame-mp3>.

The Windows operating system will automatically start the installation program when the provided CD is inserted into the CD drive of a computer. If it does not start automatically, then use the Windows Explorer to run the setup.exe program located on the CD.

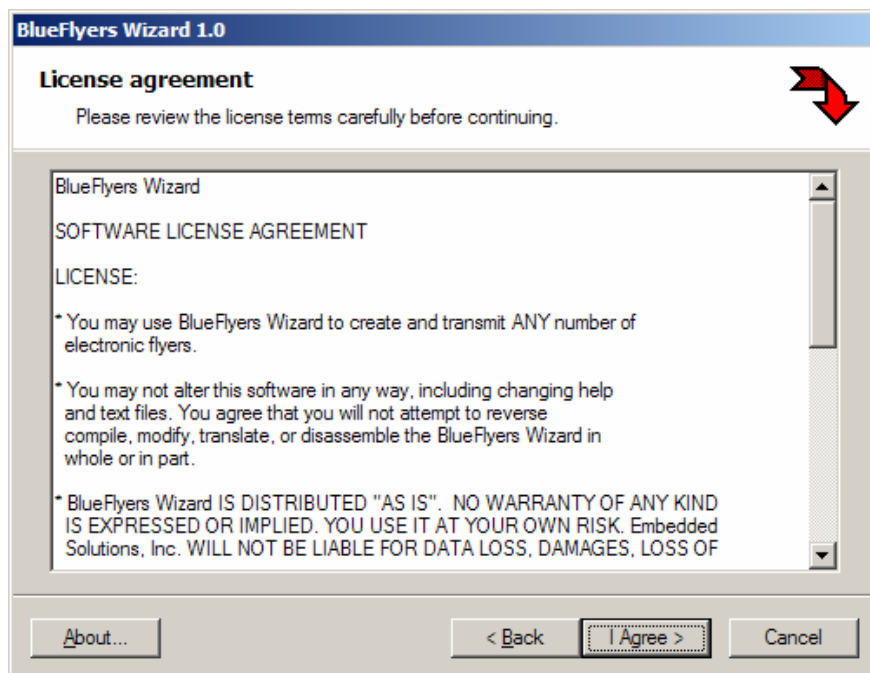
The installation enables the installation of the BlueFlyers Wizard or Audacity. First click on the radio button to select the BlueFlyers Wizard and click the Install button. This will start the BlueFlyers Wizard's installer.



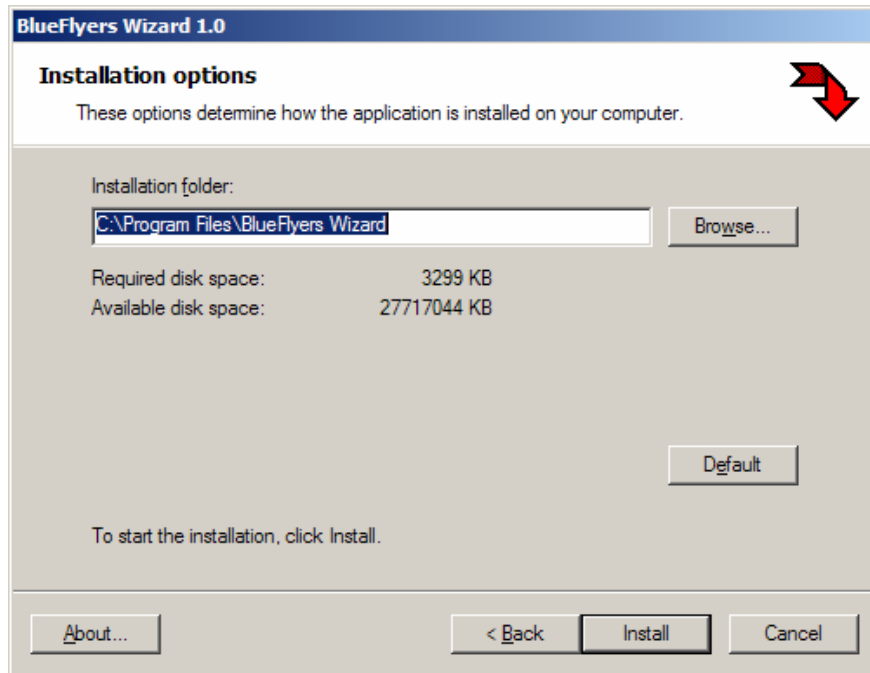
Read the Welcome screen and then click the Next button.



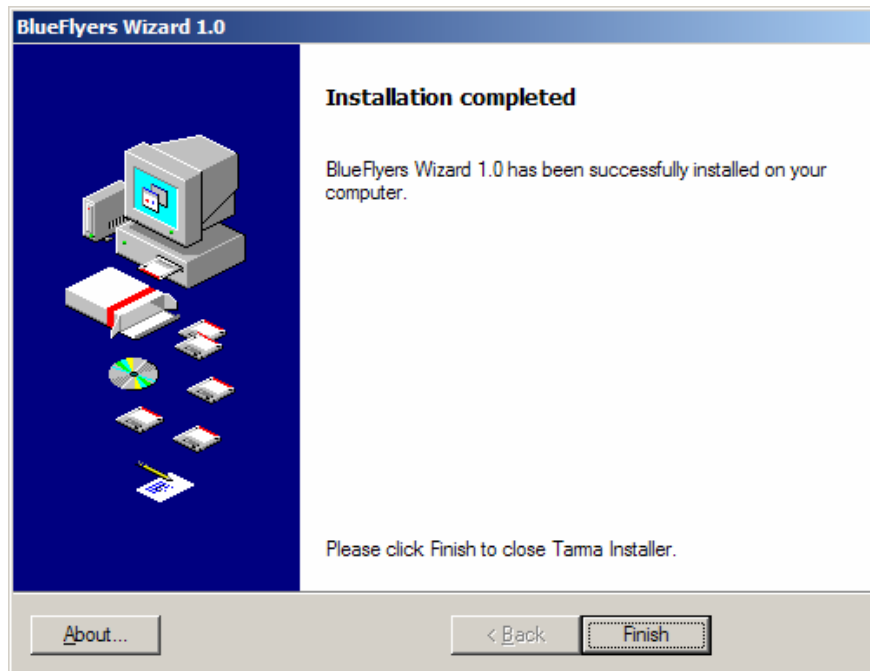
Read the License Agreement. If the terms are agreed upon, click the 'I Agree' button, otherwise click the Cancel button.



On the Installation Options screen, select a directory for the installation of the BlueFlyers Wizard software or leave the default installation directory if desired. Click the Install button.

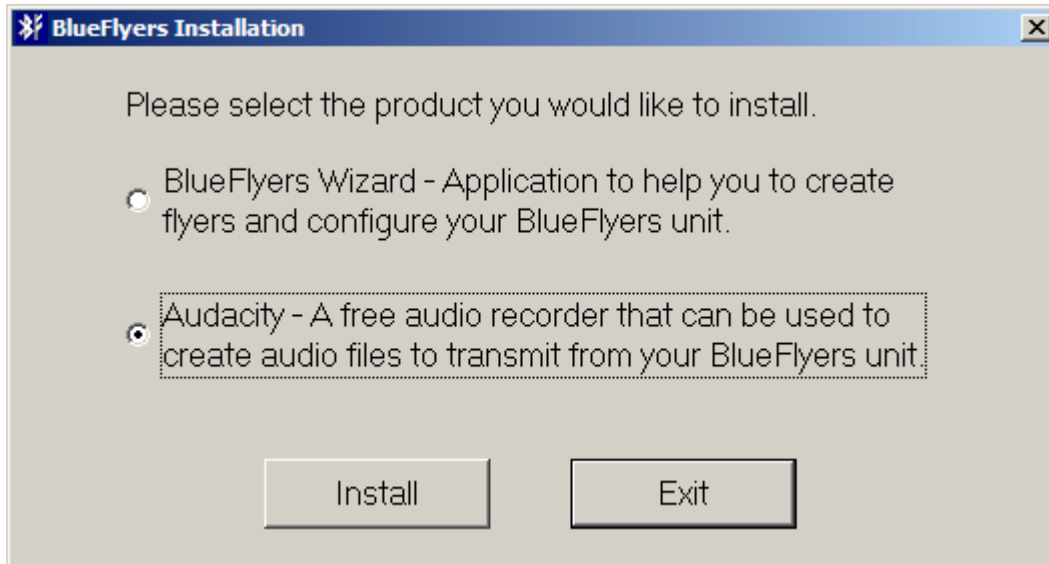


When the process has finished, click the Finish button.



The BlueFlyers Wizard is now installed and a BlueFlyers Wizard folder should appear on the Windows Start menu.

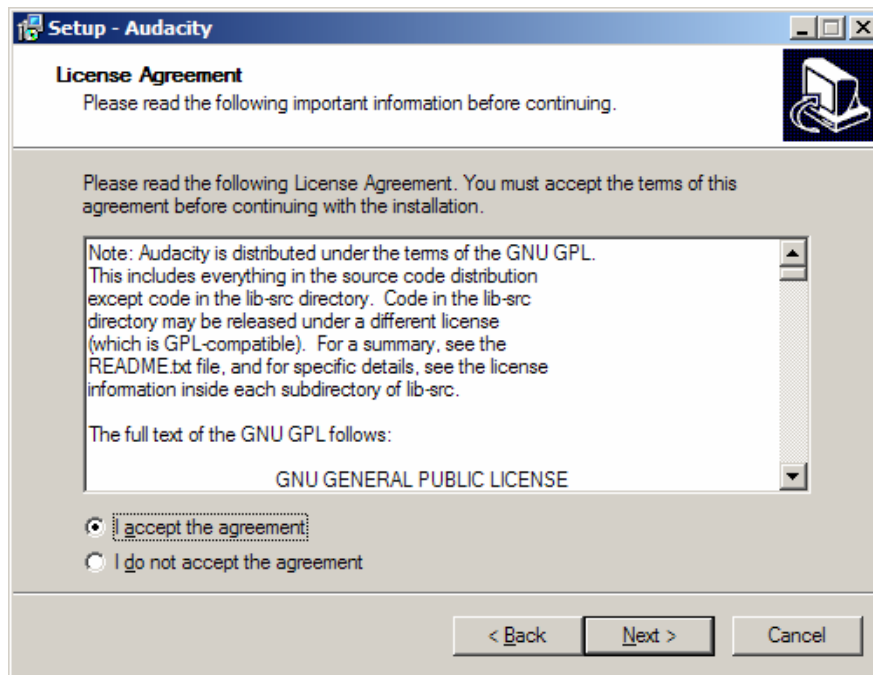
On the main installation screen, select to install Audacity if desired. Click on the radio button to select the Audacity and click the Install button. This will start Audacity's installer.



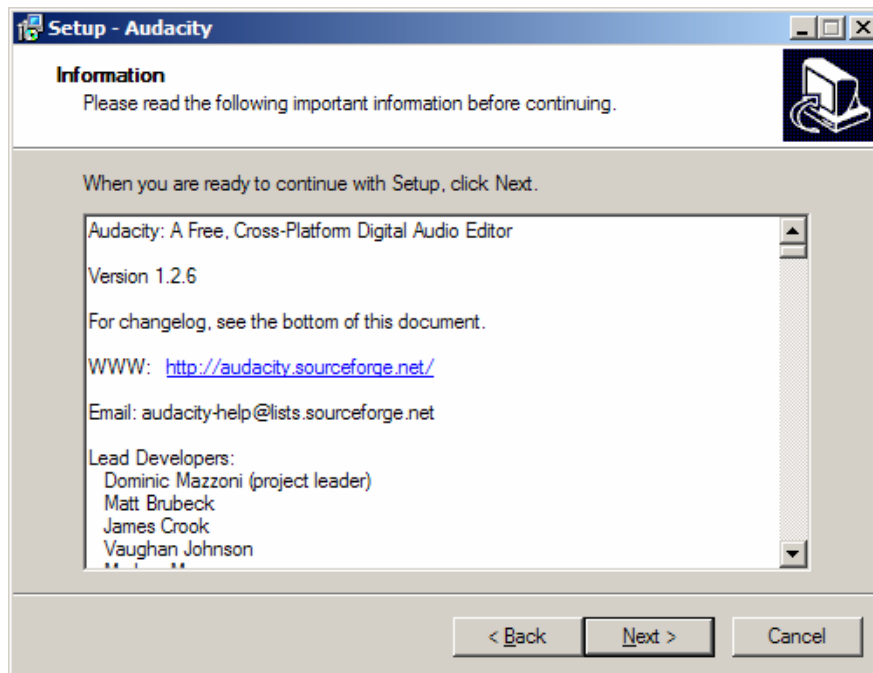
Read the Welcome screen and then click the Next button.



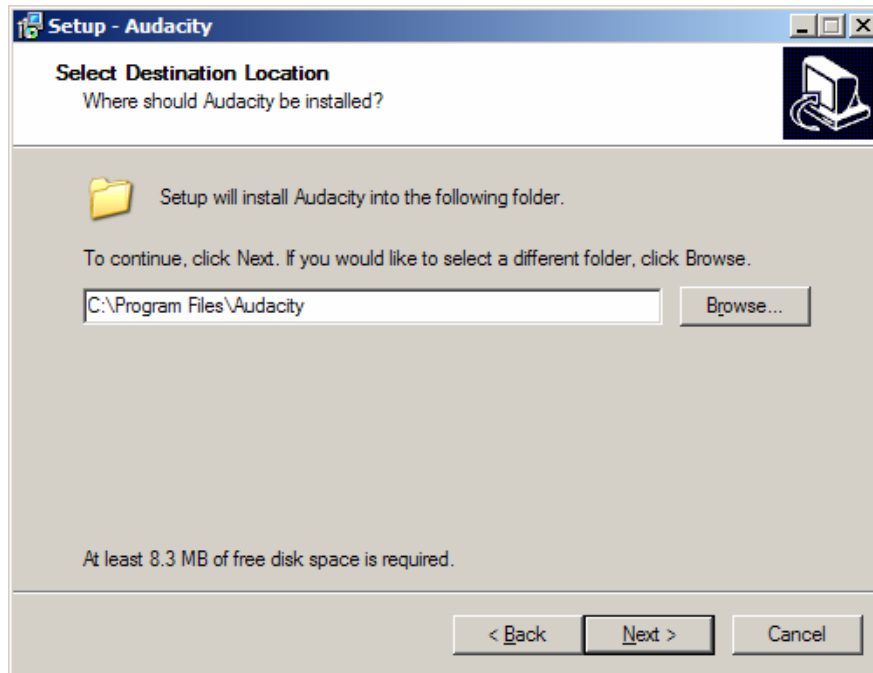
Read the License Agreement. If the terms are agreed upon, click the radio button next to 'I accept the agreement' and click the Next button, otherwise click the Cancel button.



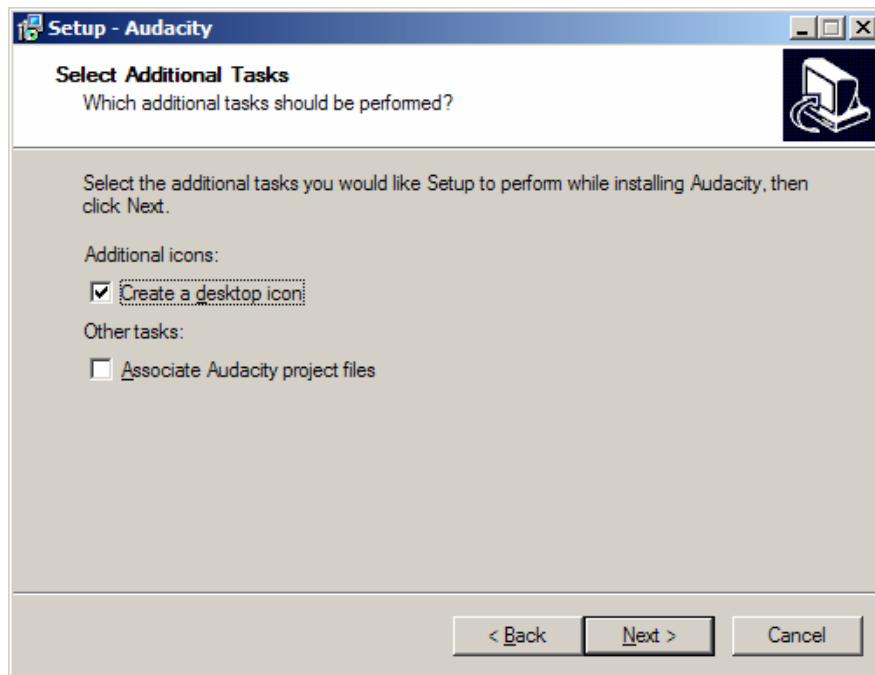
Read the Information screen and click the Next button.



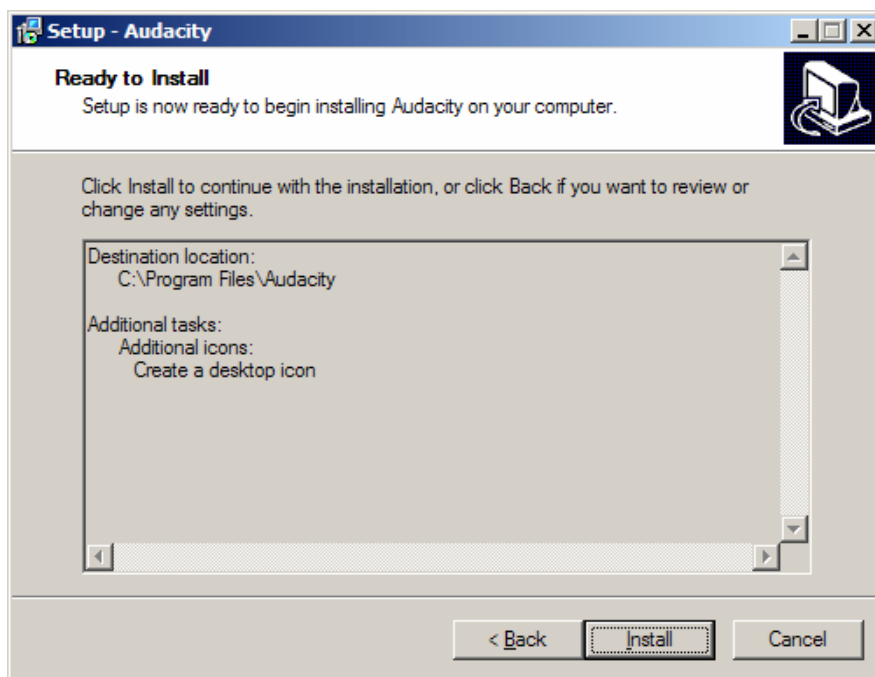
On the Select Destination Location screen, select a directory for the installation of the Audacity software or leave the default installation directory if desired. Click the Next button.



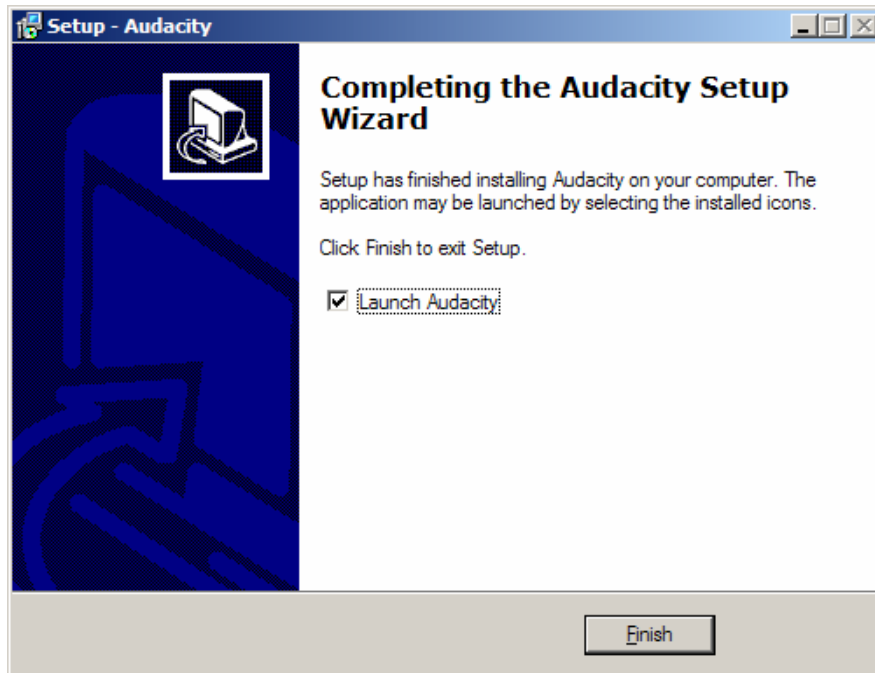
On the Select Additional Tasks screen, select the options to be installed by Audacity.



On the Ready to Install screen, review the installation options and click the Install button.



When the process has finished, uncheck the Launch Audacity check box if it is not desired for to start the application immediately. Click the Finish button.



Audacity is now installed and there should be an Audacity program icon on the Windows Start menu. This will not be located in a folder, but may be moved to one if desired.

Use the Help menu on Audacity to learn how to use the software.

The software installation is now complete; click the Exit button on the main installation screen. Start either application using the application icons located in the Start Menu.

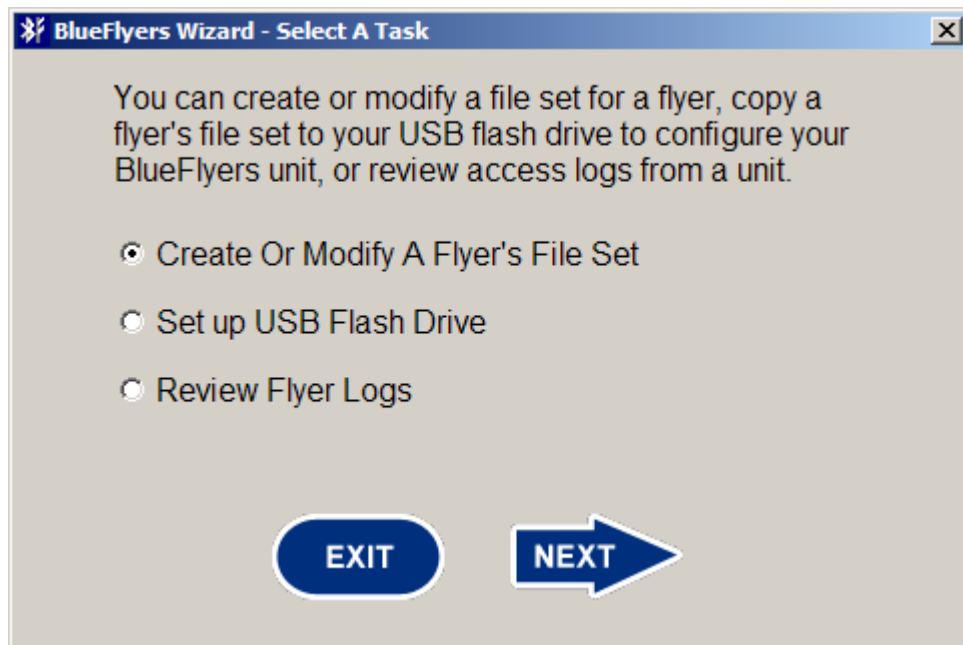
Creating A Flyer File Set

The BlueFlyers Wizard allows the creation and storage of flyer information for multiple marketing efforts. The file set for a flyer will include files to transfer to customers (such as pictures and text files), and audio files to play over the FM transmitter.

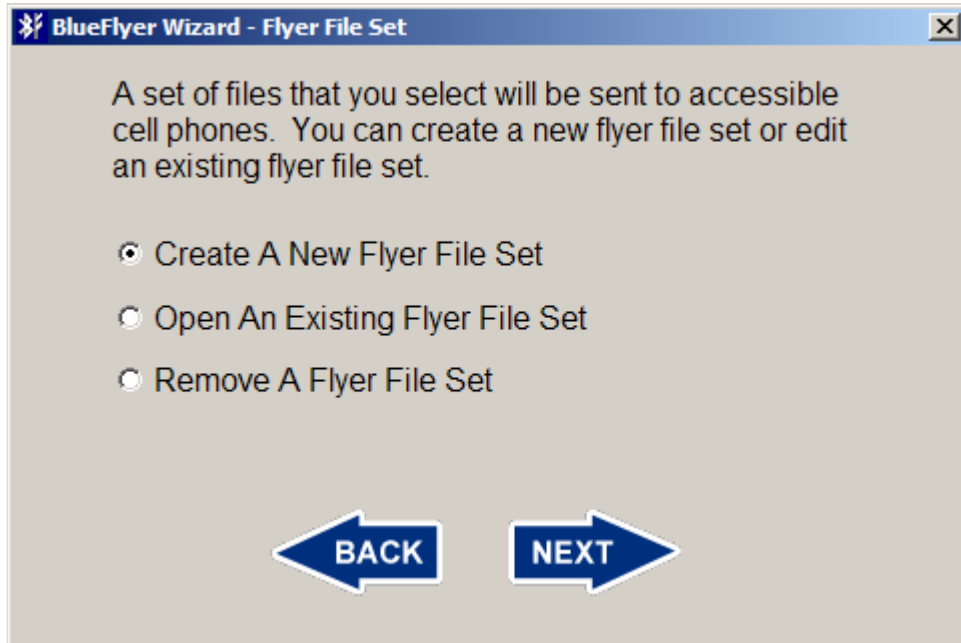
To create a file set for a flyer, start the BlueFlyers Wizard and click Next on the Welcome screen.



Click the radio button next to "Create Or Modify A Flyer's File Set", then click the Next button.



Click the radio button next to “Create A New Flyer File Set”, then click the Next button.



The next screen will request the description of the flyer. This is used to catalog the flyer and allow future identification of it. A title must be entered before the Next button will be enabled.

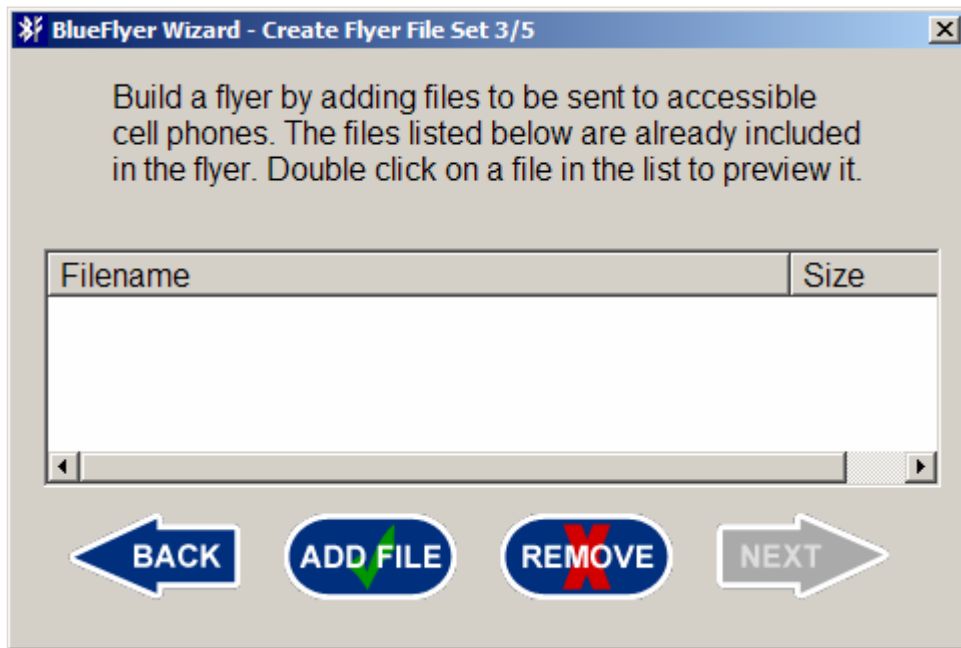
The Unit Name field is the name customers will see over Bluetooth and it will appear on some cellular phones when a connection request is made. This field is limited to 247 characters. If left blank, the name "BlueFlyers (PIN: 00)" will be used.

The screenshot shows a dialog box titled "BlueFlyers Wizard - Create Flyer File Set 1/5". The main text reads: "Enter a description for the flyer. The unit name will be seen by customers over Bluetooth, e.g. 'Free Coupon'". Below this text are three input fields: "Title" (a single-line text box), "Details" (a multi-line text area with scrollbars), and "Unit Name" (a single-line text box). Under the "Unit Name" field, the text "Left: 247" is displayed. At the bottom of the dialog, there are two buttons: "BACK" (a blue arrow pointing left) and "NEXT" (a grey arrow pointing right).

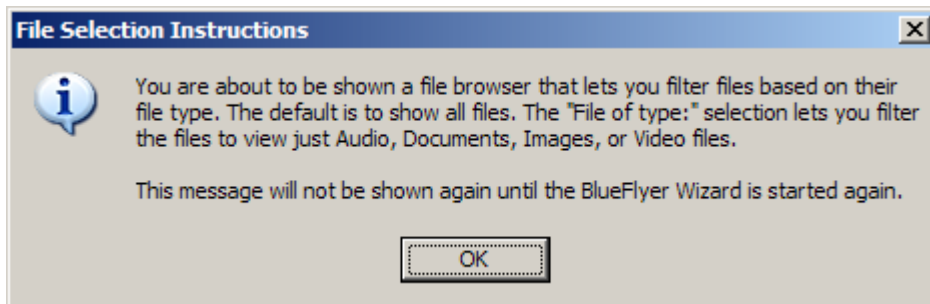
After clicking the Next button, an information screen will appear with a notification that files are to be selected to create a flyer that will be sent over Bluetooth to customers. Read this information and click the Next button.

The screenshot shows a dialog box titled "BlueFlyers Wizard - Create Flyer File Set 2/5". The main text reads: "You will now select files to include in this flyer file set. These files will be sent via Bluetooth to prospective buyers' cell phones." Below this text, there is a second paragraph: "Keep in mind that large files will take longer to transfer. Many phones have the ability to play audio files such as mp3s, and display images such as jpgs." At the bottom of the dialog, there are two buttons: "BACK" (a blue arrow pointing left) and "NEXT" (a blue arrow pointing right).

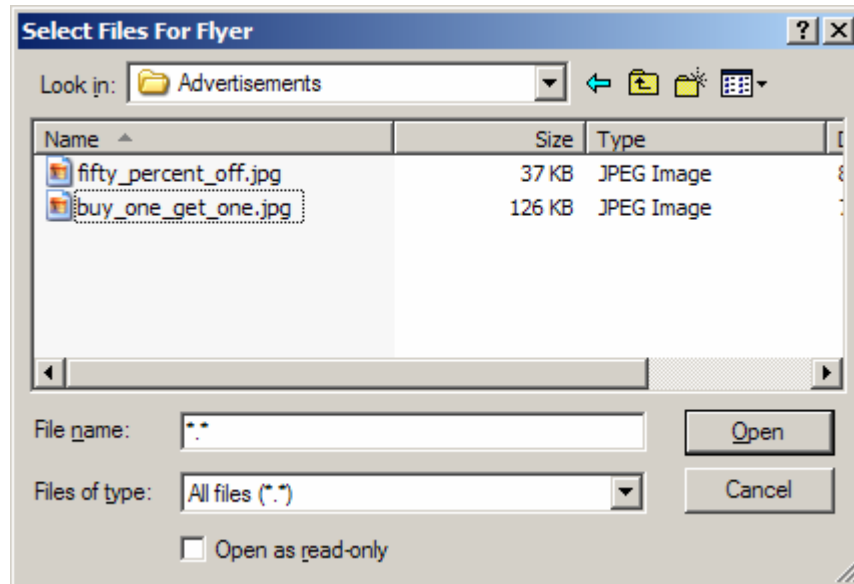
Click the Add File button to select the files to be included in this flyer.



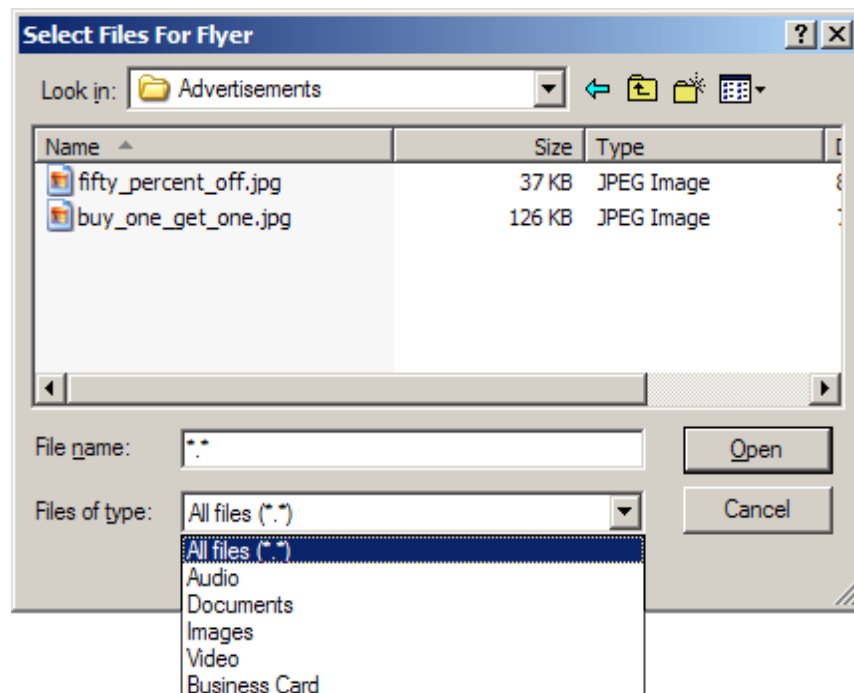
After clicking the Add File button, a file browser window is shown to select the files which will be included in this flyer's file set. The first time the Add File button is clicked after starting the BlueFlyers Wizard, an informational screen that explains how the file browser's filter works is shown. Read the information and click the OK button.



Use the file browser to locate the files to include in the flyer. More than one file can be selected in the file browser at a time.



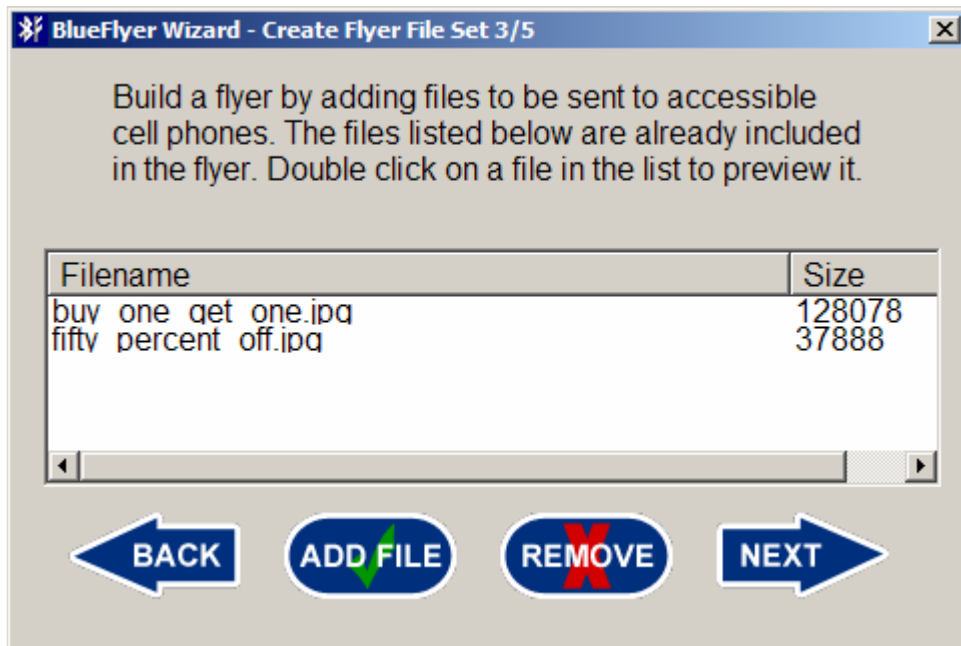
The "Files of Type" filter can be used to view only certain files, such as audio files or images, or select All files to remove the filter.



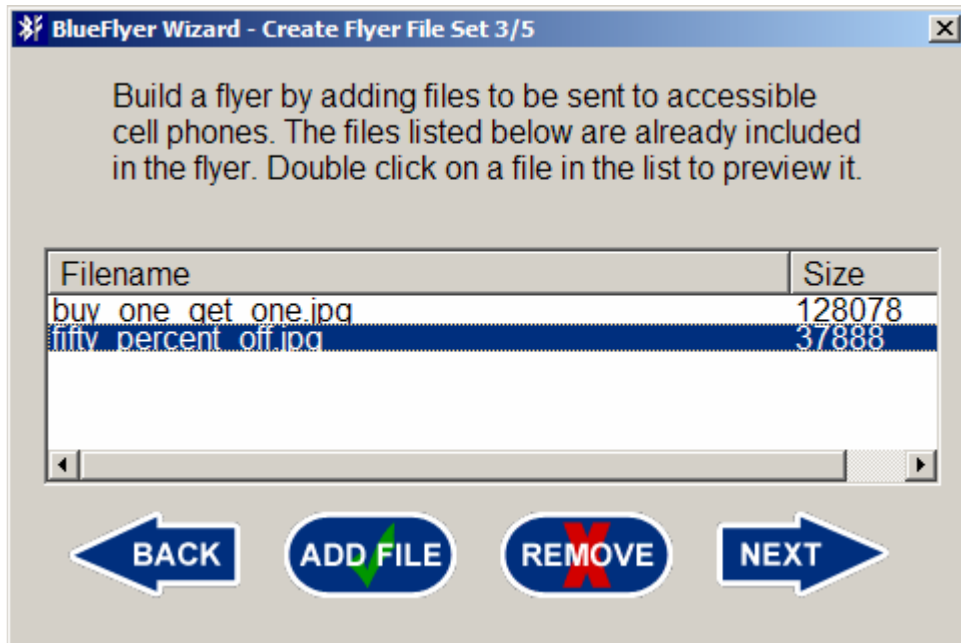
Select one or more files by clicking on the file names in the browser. To select multiple files, hold down the Control (CTRL) key while clicking on the desired

files. After files are selected, click the Open button on the file browser to add the files to the file set. Files can be added individually; it is not necessary to select all files at once.

The files added will be displayed by the BlueFlyers Wizard. The file size is also shown. Keep in mind that the larger a file, the longer it will take to transfer over Bluetooth.



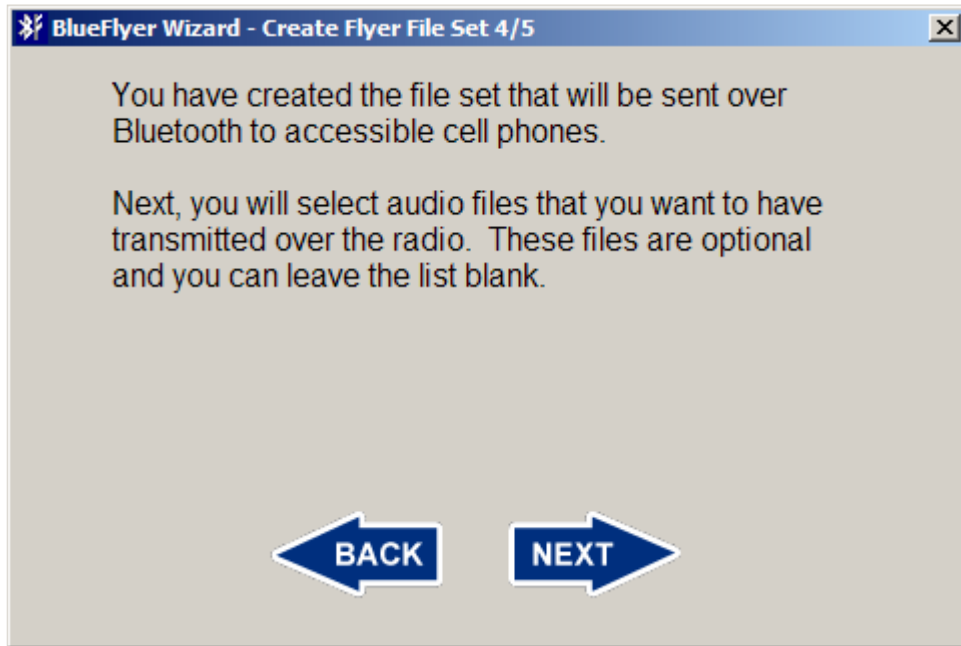
To remove a file from the file set, click on the file name so that it is selected, and then click the Remove button.



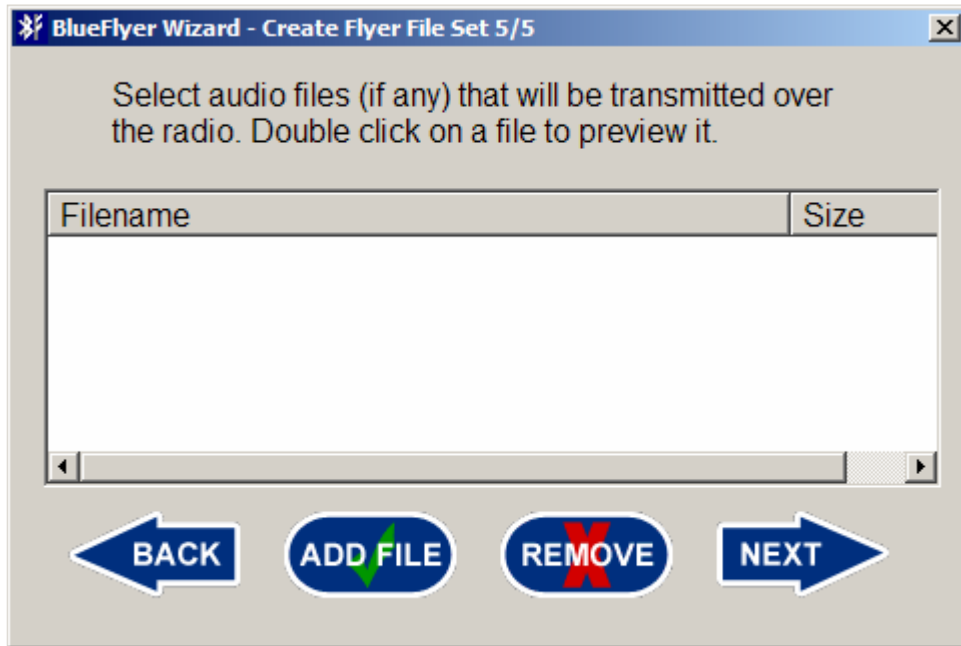
Any of the files in the flyer's file set can be opened by double clicking on the file name. Windows' default application for handling the selected type of file will be used to display the file's contents. For example, if Microsoft Paint is the default program for BMP files, then double clicking on a BMP file will use Paint to open and display the image.

The Next button will not be enabled until at least one file has been added to the flyer's file set. Click the Next button when finished adding files.

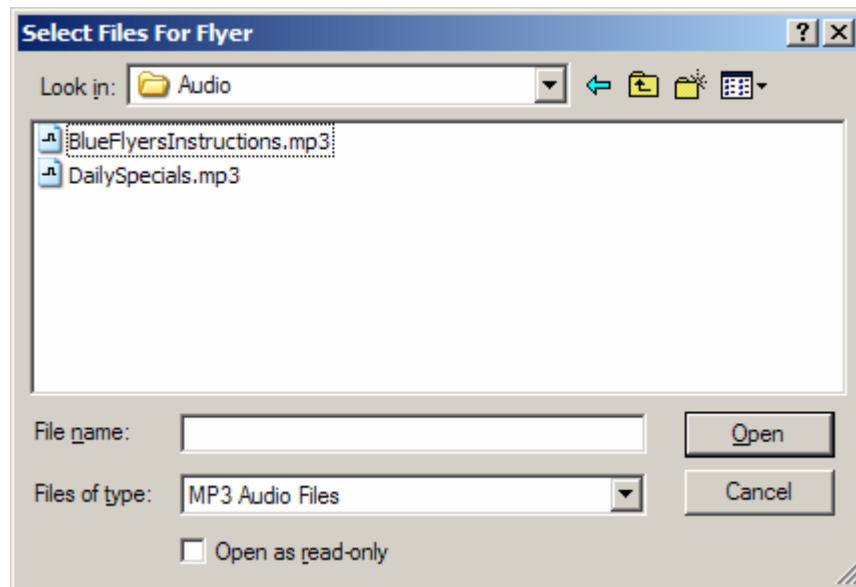
An information screen is shown with a notification that audio files are to be selected to be broadcast over the FM transmitter. Use of broadcast files is optional. Read this information and click the Next button.



Select the MP3 audio files to include in this flyer's FM broadcast. It is optional to include any broadcast files. Leave the list empty and click the Next button if no broadcast is desired.

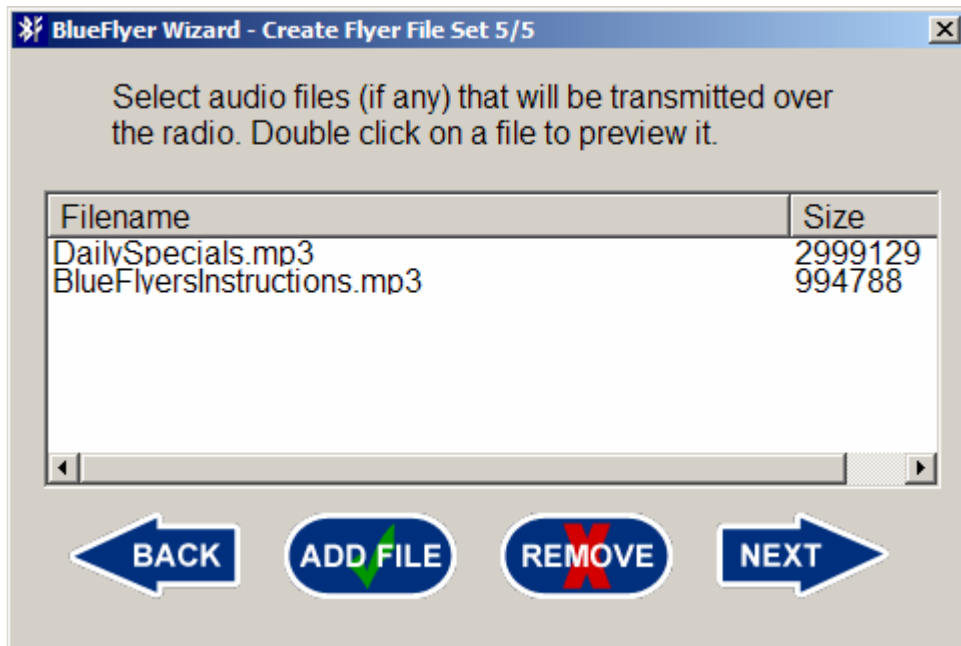


To include broadcast files, click the Add File button. A file browser window is shown to select the MP3 audio files which will be included in this flyer's FM broadcast.

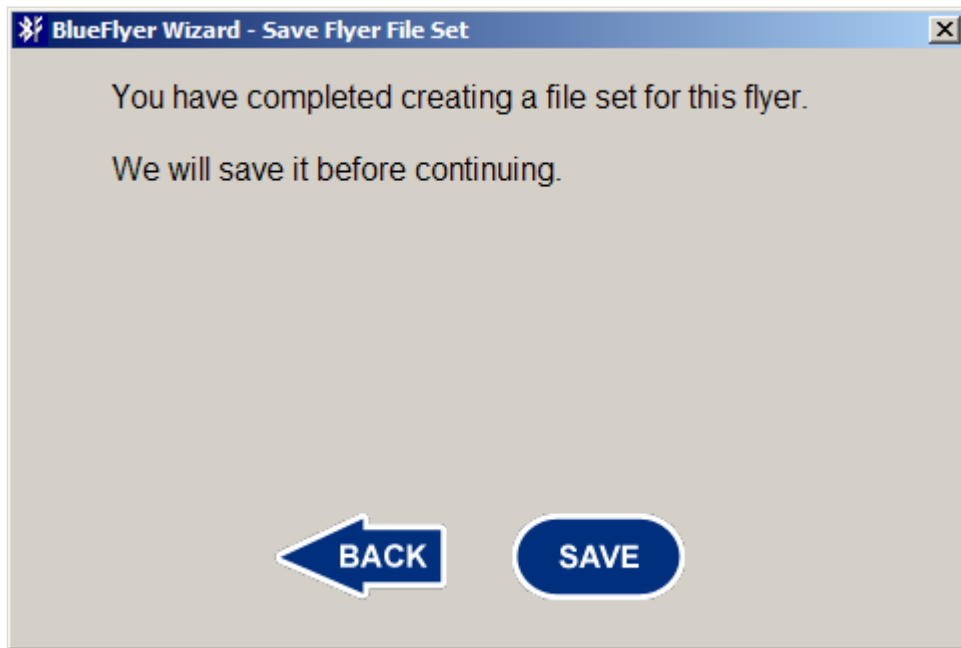


More than one file for broadcast may be included. The BlueFlyers unit will repeatedly cycle through playing each file. The size of these files will not affect customers, but the BlueFlyers does have a limited amount of memory and files that are too large may affect the performance of the BlueFlyers unit. Files under 5MB are recommended.

Click the Next button after the broadcast files for this flyer are selected.

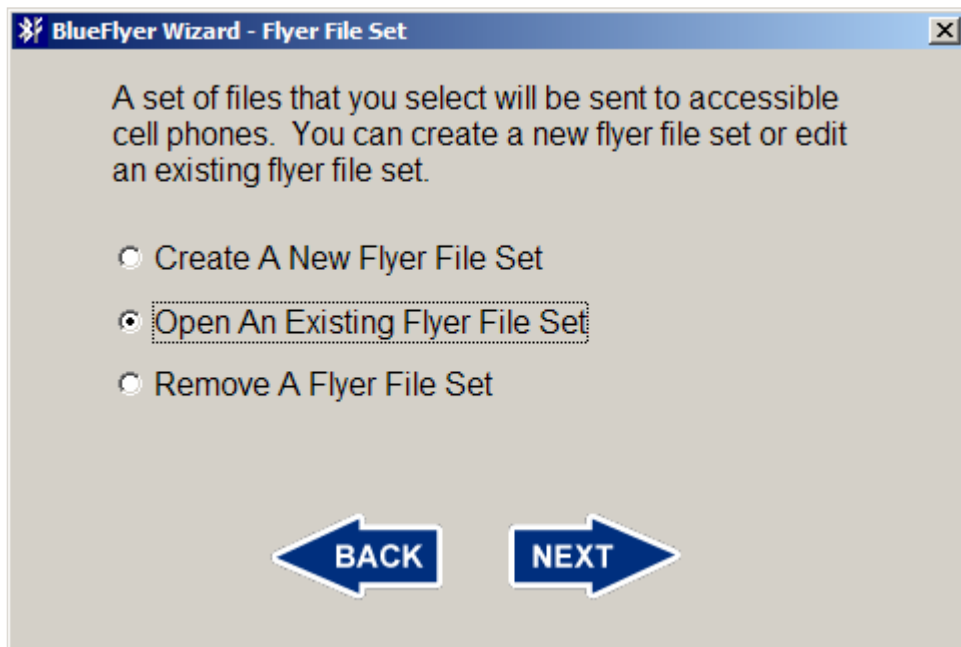


Creation of the flyer's file set is now complete. Click the Save button to store the file set. All files that have been selected for the electronic flyer and the FM broadcast will be copied to the BlueFlyers Wizard's local directory.

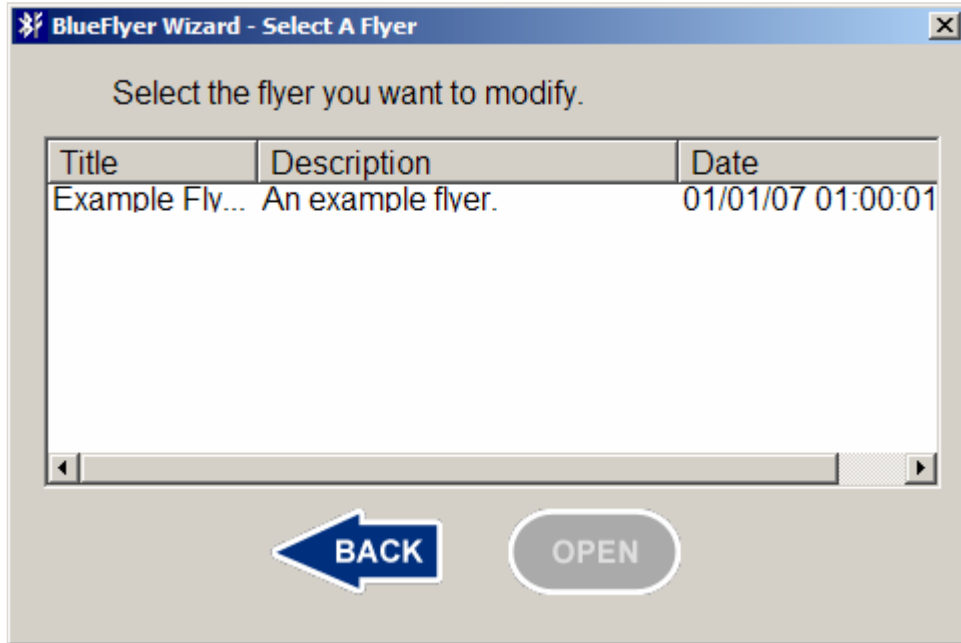


Modifying An Existing Flyer File Set

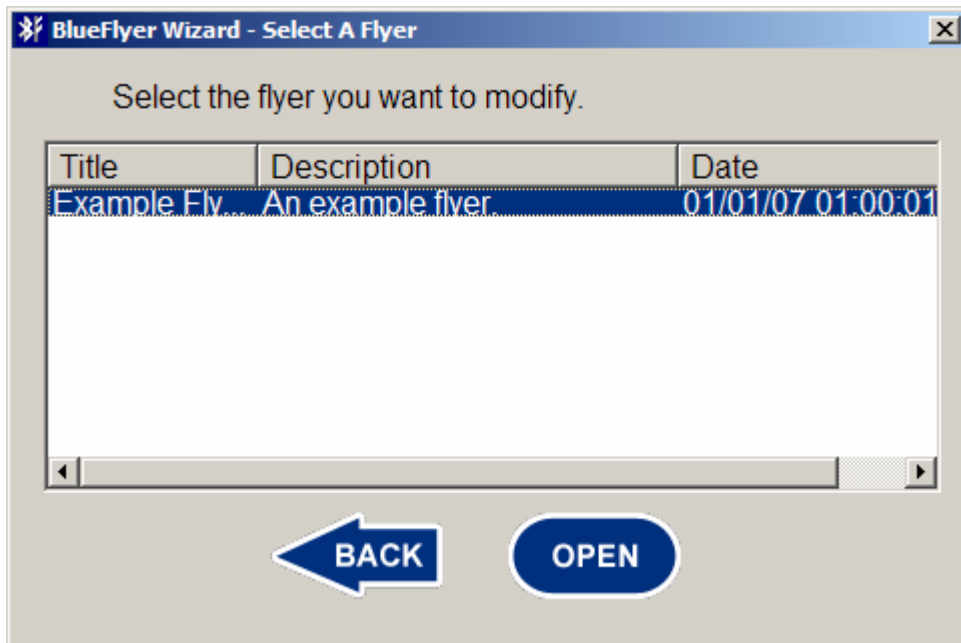
The BlueFlyer Wizard allows the modification of an existing flyer file set. On the first Flyer File Set screen, click the "Open An Existing Flyer File Set" radio button and then click the Next button.



A list of all flyers that exist on the computer is shown. The flyer title shown is based on the title provided when the flyer's file set was created. The Open button will be disabled until a flyer is selected.



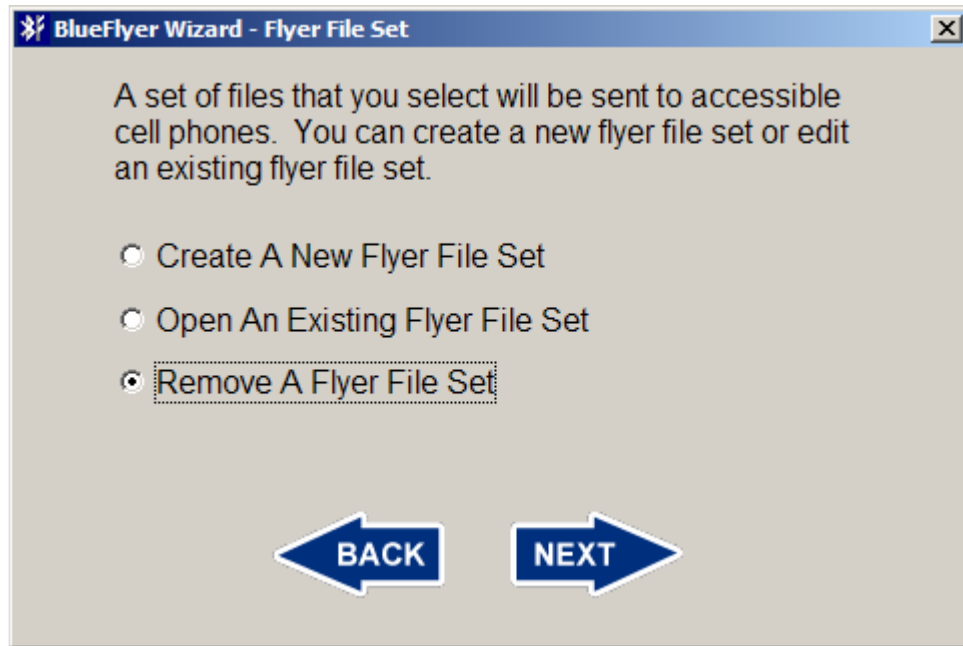
Click on the flyer title and click the Open button.



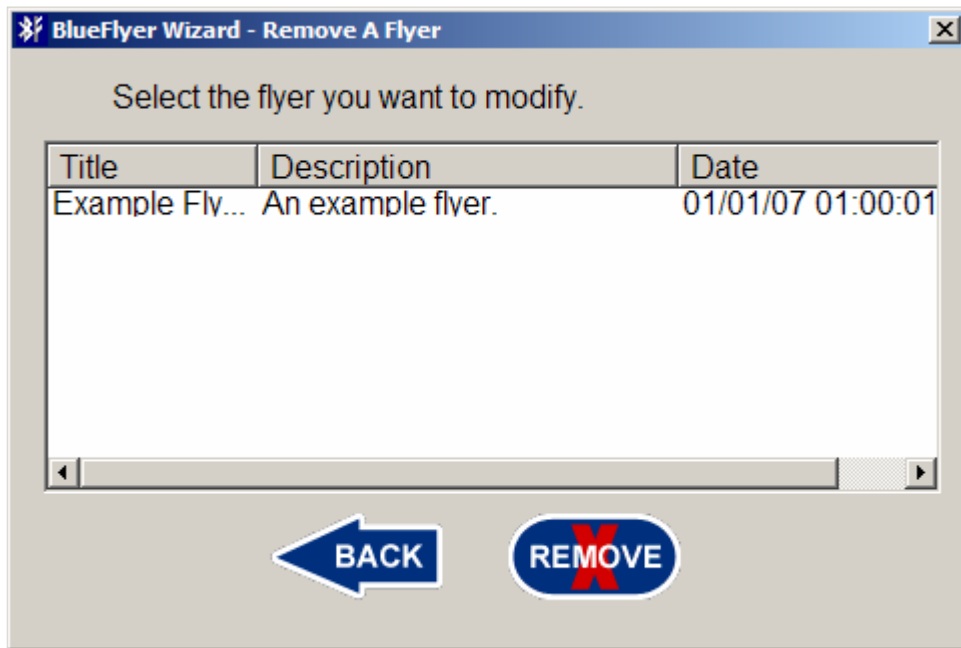
Files can be added or removed as desired. The Save screen will be shown if changes were made to the flyer's file set.

Remove A Flyer File Set

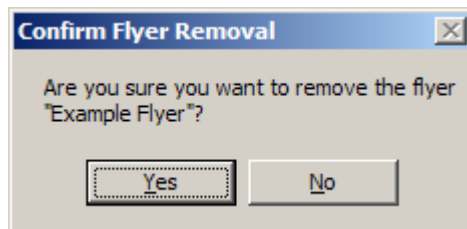
The BlueFlyers Wizard allows the removal of a flyer file set. On the first Flyer File Set screen, click the "Remove A Flyer File Set" radio button and then click the Next button.



A list of all flyers that exist on the computer is shown. The flyer title shown is based on the title provided when the flyer's file set was created. Select the flyer that is to be removed by clicking on its title and then click the Remove button.



A confirmation screen will be shown to verify that the flyer is to be removed. Removed properties cannot be restored. Click the Yes button to confirm removal, otherwise click the No button.



When finished removing flyers, click the Back button.

Configuration

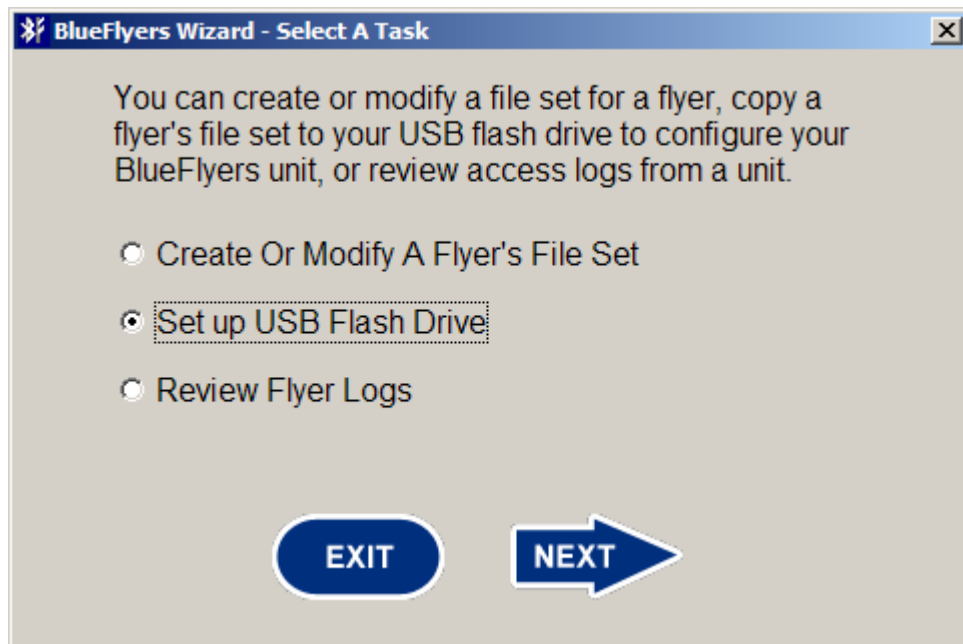
Use the BlueFlyers Wizard to configure the BlueFlyers unit. This is done by selecting the desired flyer and BlueFlyers mode which then is stored from the PC to the USB flash drive. When the flash drive with the stored files is plugged into a BlueFlyers unit and the unit is turned on or its power is cycled, then the

BlueFlyers configures itself with the files located on the flash drive. The flash drive can be removed after configuration is complete.

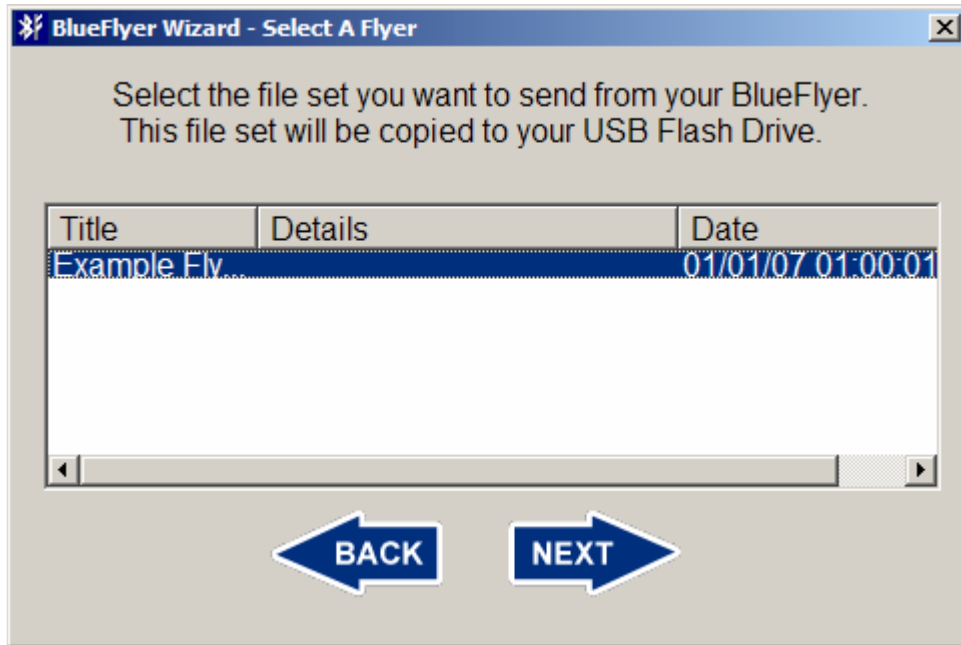
To setup a USB flash drive to configure the BlueFlyers unit, start the BlueFlyers Wizard and click Next on the Welcome screen.



Click the radio button next to "Set Up USB Flash Drive", then click the Next button.

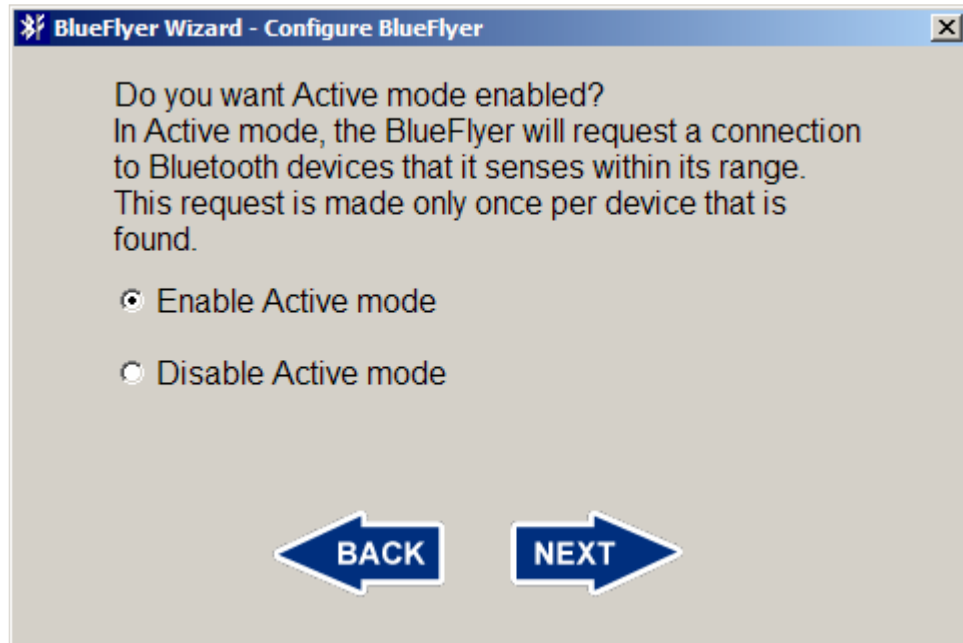


A list of all flyers that exist on the computer is shown. The flyer title shown is based on the title provided when the flyer's file set was created. The Next button will be disabled until a flyer is selected. Click on the flyer title that the BlueFlyers unit is to send and click the Next button.



Active mode can be enabled if desired. In Active mode, a request to send a flyer is made to all Bluetooth devices that are found within the BlueFlyers' transmit range. For each device found, only one request to send is made for a particular flyer's file set. Regardless of whether the recipient accepts or declines the flyer, they will not be asked again. Customers can still receive the flyer using passive mode operation by initiating the request.

To enable Active mode, click the radio button next to “Enable Active mode”, then click the Next button. To disable Active mode, click the radio button next to “Disable Active mode”, then click the Next button.

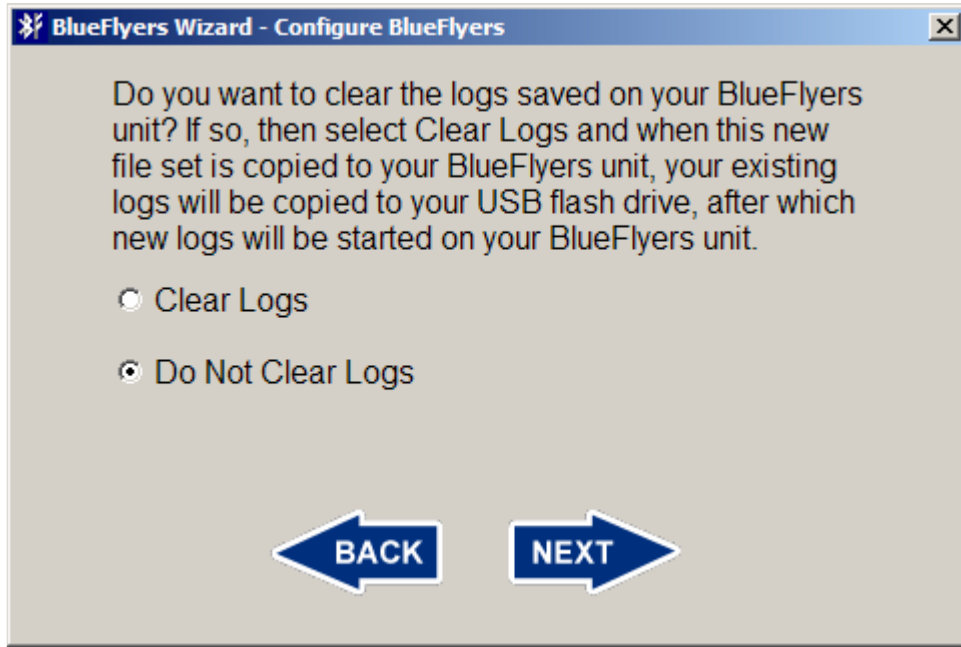


The BlueFlyers unit stores log files on its permanently installed CompactFlash card. These logs store information about the download of the flyers from the unit and the unit’s operational status. As the log files grow, they will consume the free space on the card. Logs may be cleared periodically to reclaim used space. Also, as the logs grow, they may become more difficult to review and clearing them may ease review. Clearing logs is not necessary on a regular basis.

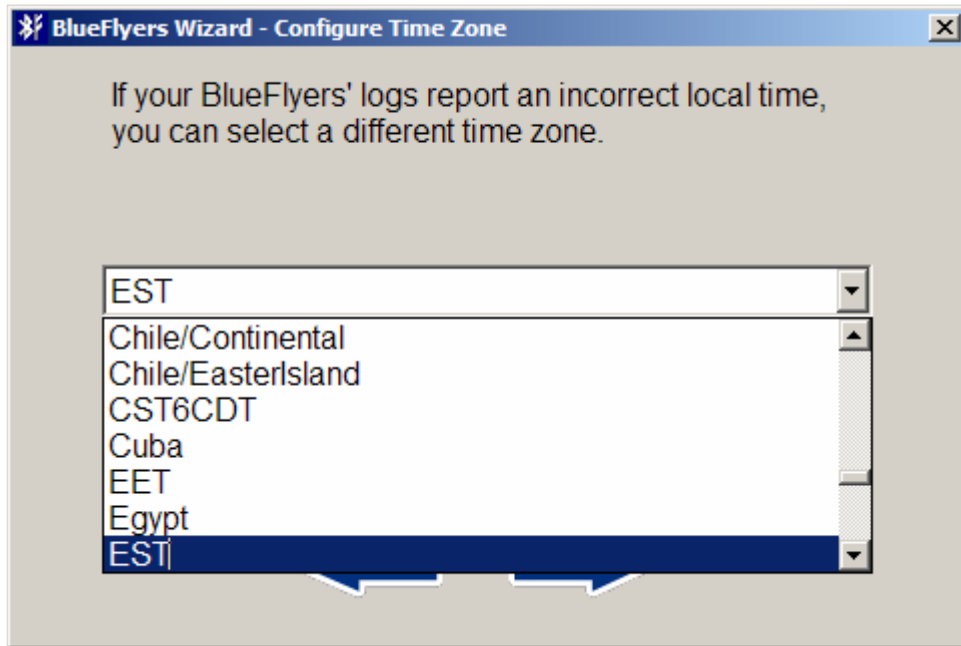
When a file set is copied from the USB flash drive to the BlueFlyers unit, the unit’s logs are copied back to the flash drive. The size of the logs can be used to determine if and when to clear the logs.

Clearing the logs will remove the BlueFlyers’ information about Bluetooth devices which have received specific flyers. If operating in Active mode, clearing the logs may cause the BlueFlyers unit to request to send a duplicate flyer to a Bluetooth device that is found within its range.

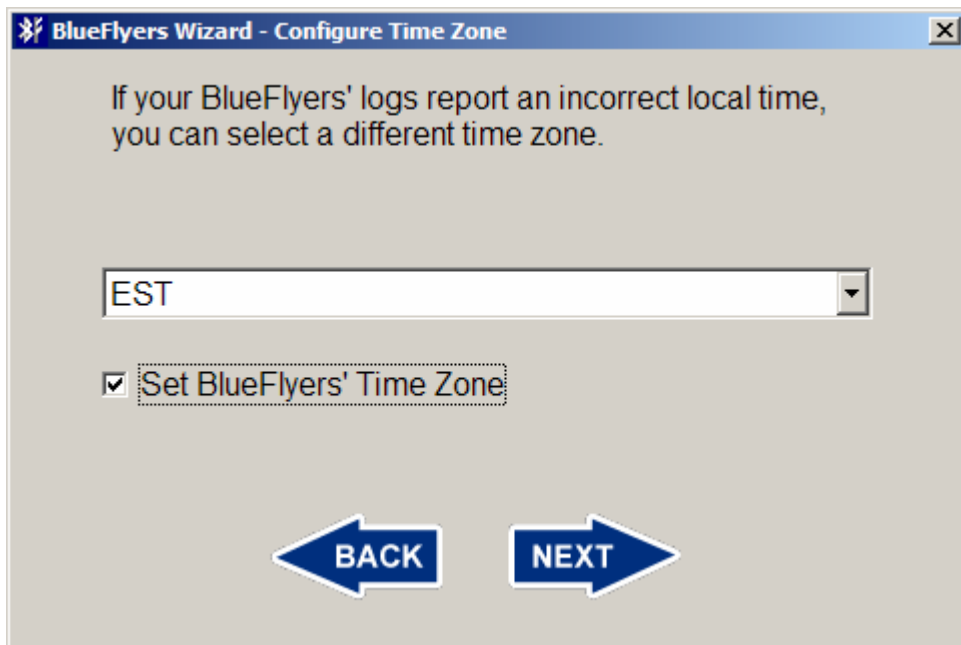
Click the radio button next to “Clear Logs” and then click the Next button to configure the BlueFlyers unit to clear its logs. Click the radio button next to “Do Not Clear Logs” and then click the Next button if the unit’s logs do not need to be cleared.



The BlueFlyers' time zone can be configured to reflect the local time. Click the check button next to "Set BlueFlyers' Time Zone" and then use the drop down box to select the appropriate time zone from the list.

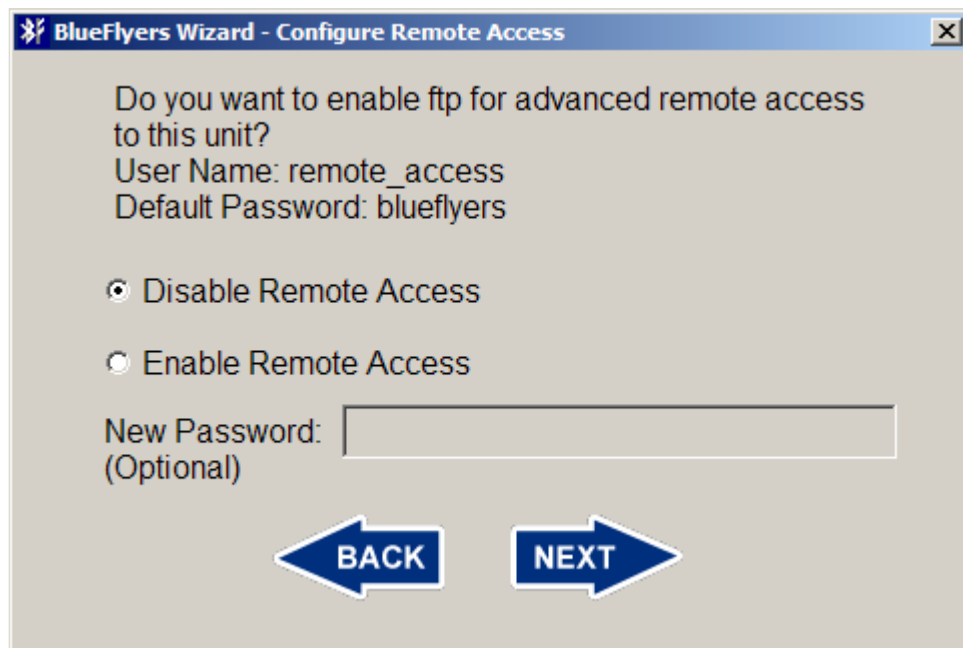


A unit's time zone only needs to be set once. Click the Next button.



There are several advanced networking modes supported by the BlueFlyers unit. Use of these modes is optional. Remote FTP and HTTP access to the unit can be enabled to allow updating flyers and access to logs over a network connection. This mode requires an Ethernet connection to a network or the Internet. If advanced networking is not needed, click the radio button next to "Disable Remote Access" and click the Next button.

If remote access is not enabled, then the next screen shown will be the power level screen. The FTP ports, HTTP port, DHCP/static IP address, and unit networking screens will be skipped.



Remote access mode allows FTP and HTTP access into the unit over a network. This FTP mode should not to be confused with Bluetooth FTP mode.

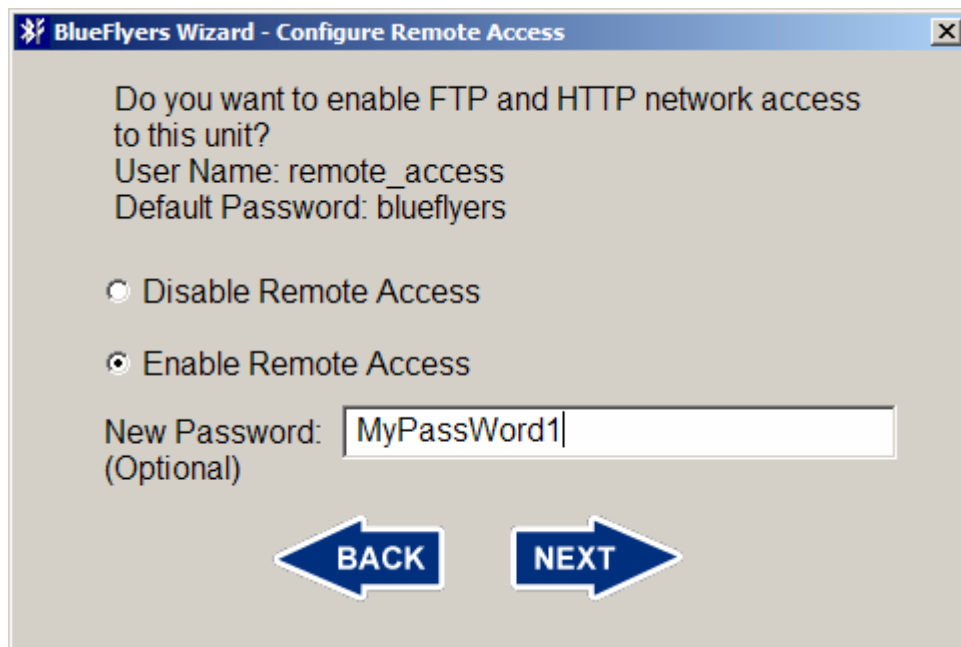
Bluetooth FTP mode allows a Bluetooth device to connect over Bluetooth and copy the flyer from the unit. Bluetooth FTP only provides access to the directory containing the flyer and does not allow anything to be copied onto the unit.

Remote access FTP mode requires a user name and password to connect to the unit by FTP and the connection is made over Ethernet. This mode provides read and write access to the BlueFlyers' configuration directories. The directory structure mirrors the structure built on the USB flash drive, plus there are two extra directories. The layout is as follows:

Directory	Use
logs	Contains logs with information about flyer distribution and process performance
private	Contains the unit's configuration file
public	Contains the files to be sent to customers over Bluetooth – any files placed in this directory will be sent to consumers
radio	Contains the MP3 files to be played for broadcast using the optional FM transmitter
remote_logs	Exists only when in network mode and will contain a temporary copies of the flyer distribution logs from other units – not found on the USB flash drive
update	Read-only access, contains information about the software updates installed on the unit – not found on the USB flash drive

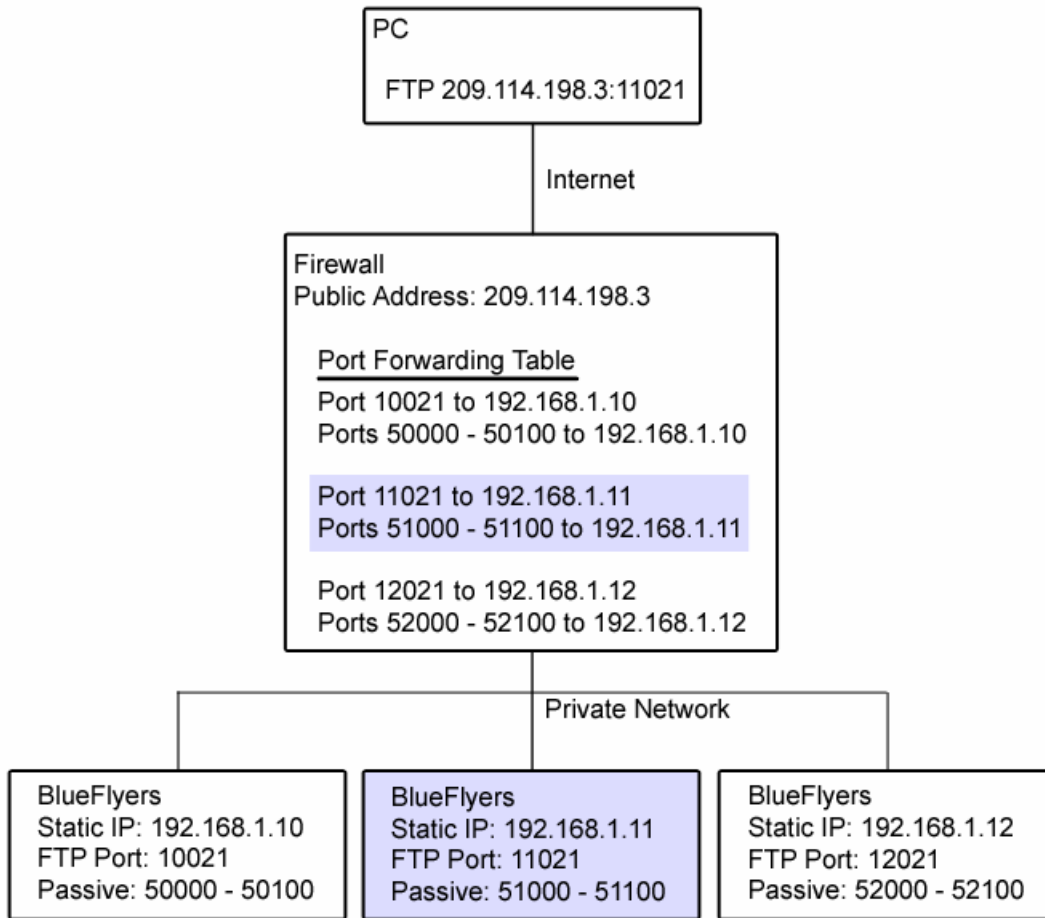
Remote access HTTP mode requires the same user name and password as remote access FTP mode. HTTP mode provides a graphical interface to uploading and downloading files from the public and radio directories, viewing log files, and configuring the unit.

To enable FTP and HTTP access, click the radio button next to “Enable Remote Access”. A new remote access password can be selected at this point if desired. A new password only needs to be configured once and it will be stored on the unit. The username for FTP and HTTP access is “remote_access”, and the default password is “blueflyers”. This account only has FTP and HTTP access to the unit. Click the Next button when finished.



If remote access is enabled, then the unit's FTP ports can be configured. The default FTP port is 21, and the default passive mode port range is 50000 to 50100. These can be changed for security or networking purposes. If a BlueFlyers unit is behind a firewall, then the firewall must be configured to pass the FTP and passive mode ports to the BlueFlyers unit. If multiple units are behind a firewall, then each unit will need a unique FTP port and a unique passive port range so that firewall can be configured to forward ports correctly.

The following diagram shows an example network setup. A PC with an Internet connection is used to remotely access multiple BlueFlyers units which are located behind a firewall. The units are configured for static IP addresses and unique FTP and passive mode ports. The firewall's port forwarding is configured to pass the correct ports to known static IP addresses. The PC uses the public Internet address of the firewall, in this example 209.114.198.3. This public Internet IP address is assigned by the Internet Service Provider (ISP) and may be static or dynamic depending on the service. The unique FTP port number 11021 is used to specify which unit is to be accessed. The firewall then connects the PC to the correct BlueFlyers unit based on this port number.



The FTP port configuration screen will show default settings of FTP port 21, and a passive port range of 50000 to 50100. These values can be modified if unique ports are desired. Allowed port numbers are 1 through 65534. Many ports have standard uses such as port 80 for HTTP and port 443 for secure HTTP (HTTPS); be careful when choosing alternate ports. Ports in the range of 49152 to 65534 are reserved for dynamic use and are fairly safe to use. Click the next button when finished selecting FTP ports.

The FTP ports can be configured for your network configuration.

FTP Port:

Start Passive Ports:

End Passive Ports:

This screenshot shows a dialog box titled "BlueFlyers Wizard - Configure FTP Ports". It contains a text area with the instruction "The FTP ports can be configured for your network configuration." Below this are three input fields: "FTP Port" with the value "21", "Start Passive Ports" with the value "50000", and "End Passive Ports" with the value "50100". At the bottom, there are two blue arrow buttons labeled "BACK" and "NEXT".

Similarly, the units HTTP port can be configured. The default HTTP port is set to 80. If the unit resides behind a firewall, the firewall will need to be configured as described above to pass the configured HTTP port activity to the BlueFlyers unit's local network IP address. Click the next button when finished selecting the HTTP port.

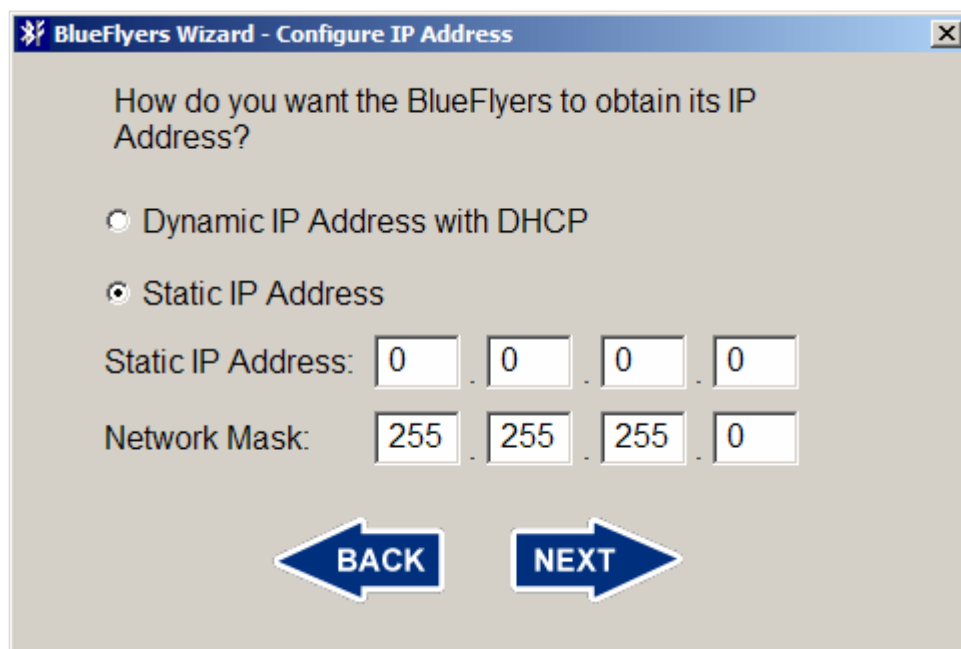
The HTTP port can be configured for your network configuration.

HTTP Port:

This screenshot shows a dialog box titled "BlueFlyers Wizard - Configure HTTP Ports". It contains a text area with the instruction "The HTTP port can be configured for your network configuration." Below this is one input field: "HTTP Port" with the value "80". At the bottom, there are two blue arrow buttons labeled "BACK" and "NEXT".

If remote access is enabled, then the unit can be configured to have a static IP address or to use DHCP. Using DHCP, the unit will automatically try to acquire an IP address from a DHCP server on the network. If remote access is enabled, the unit will write its IP address into its log file. This can be useful if DHCP is enabled. Be sure the Ethernet cable is connected to the unit when it is powered up.

To use a static IP address, click the radio button next to “Static IP Address”. A valid IP address and network mask must be specified. If the address specified is not valid, the unit will not be accessible from the network. The unit will first DHCP, and then set its IP address to the specified static address. It is important that DHCP is possible even when using a static address as the default gateway is determined by the DHCP process. Click the Next button when finished.



BlueFlyers Wizard - Configure IP Address

How do you want the BlueFlyers to obtain its IP Address?

Dynamic IP Address with DHCP

Static IP Address

Static IP Address: 0 . 0 . 0 . 0

Network Mask: 255 . 255 . 255 . 0

BACK NEXT

If remote access is enabled, then the unit can be setup to participate in a networked configuration of units. This allows several units to be used to cover a larger area and share flyer download information to prevent sending the same flyer repeatedly to the same Bluetooth device. Networking the units together is mainly for use with Active mode, there is little benefit from it when running in Passive mode only.

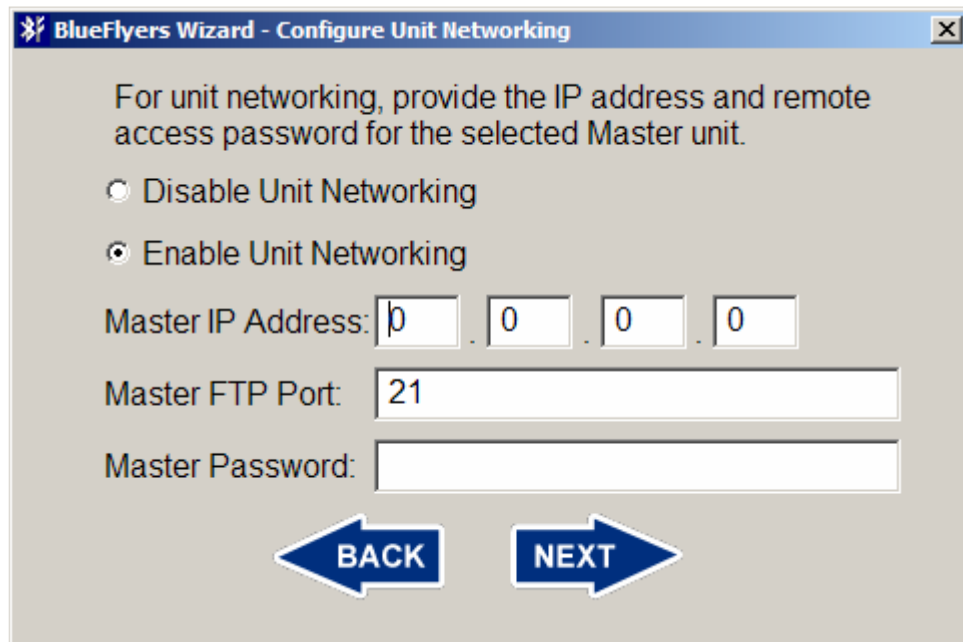
One unit in the network will be assigned the role of Master. All other units will use the Master unit’s FTP access to copy their access logs to a temporary directory, and to retrieve the access logs copied from all other units (including the Master unit’s logs). The Master unit operates the same as all other units, except it does not need to copy access logs as they are pushed and pulled from the Master unit. Any unit can be chosen as the Master unit.

When a unit first powers up and after every flyer transmission, it will copy its access log to the Master unit. Before every transmission of a flyer, the unit will check the sizes and times of all access logs on the Master to determine if any logs have been updated since they were last retrieved. This operation requires all units to have the same time zone for correct time comparisons (accuracy of the clock's time is not important).

There is a short time at power up when a duplicate flyer could be pushed to a consumer. Here's a scenario where that could happen:

A system has 3 BlueFlyers units with Active mode enabled. Unit 1 is the Master unit. Unit 2 has pushed a flyer to a consumer. At some point, all units are turned off and then back on. Unit 3 boots quickest and the consumer is in range of unit 3. Unit 2 has not booted so its shared logs are not on the master yet and unit 3 decides it's okay to send the flyer to the consumer, not knowing that unit 2 has previously sent the flyer. Once unit 2 boots and copies its access log to the Master unit, all units will no longer push the flyer to that consumer.

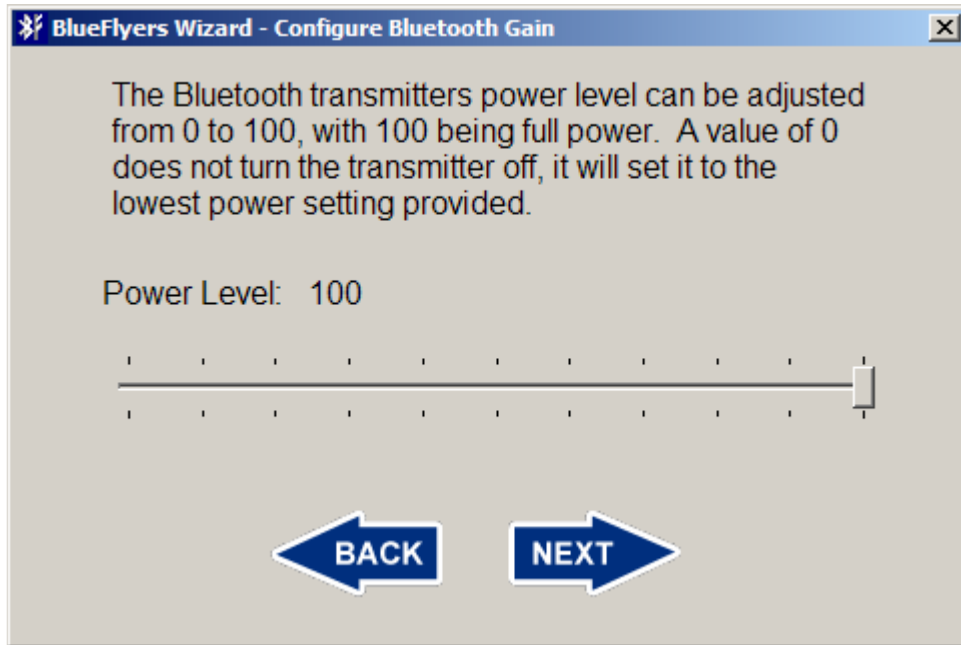
To enable networking mode, click the radio button next to "Enable Unit Networking". Specify the IP address assigned to the Master unit and the password from the remote_access FTP account on the Master unit. If using DHCP on the Master unit, its IP address must be determined. This can be found in the Master unit's log file. If the Master has been configured with a unique FTP port number (the passive port numbers are not required here), then the Master unit's FTP port number must be specified here. Click the Next button when finished.



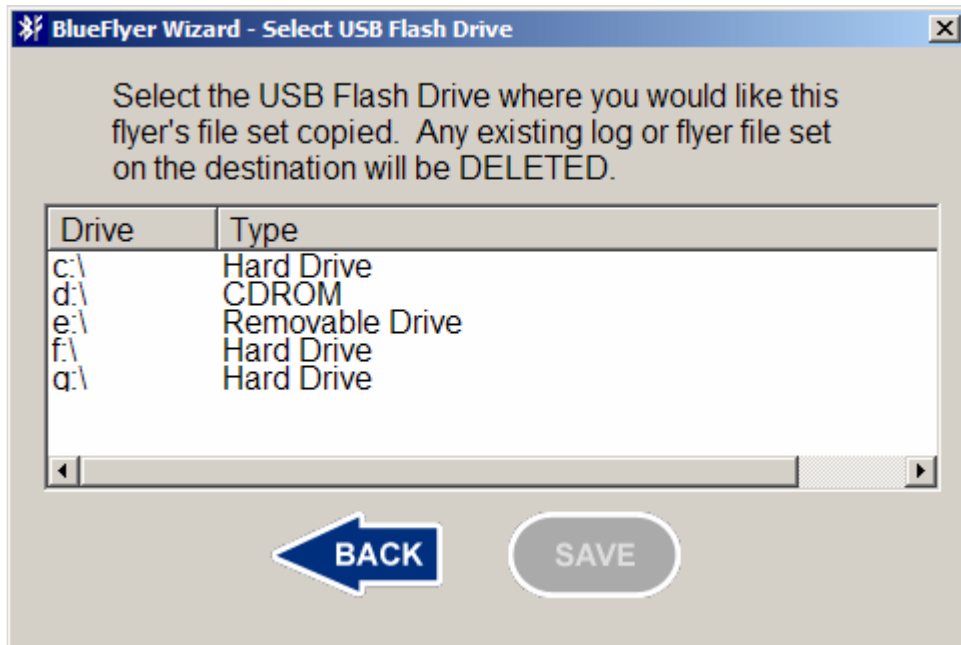
The screenshot shows a dialog box titled "BlueFlyers Wizard - Configure Unit Networking". The dialog contains the following elements:

- Instructional text: "For unit networking, provide the IP address and remote access password for the selected Master unit."
- Two radio buttons: "Disable Unit Networking" (unselected) and "Enable Unit Networking" (selected).
- Master IP Address: A field with four sub-inputs, each containing the digit "0".
- Master FTP Port: A text input field containing the number "21".
- Master Password: An empty text input field.
- Navigation buttons: A blue arrow pointing left labeled "BACK" and a blue arrow pointing right labeled "NEXT".

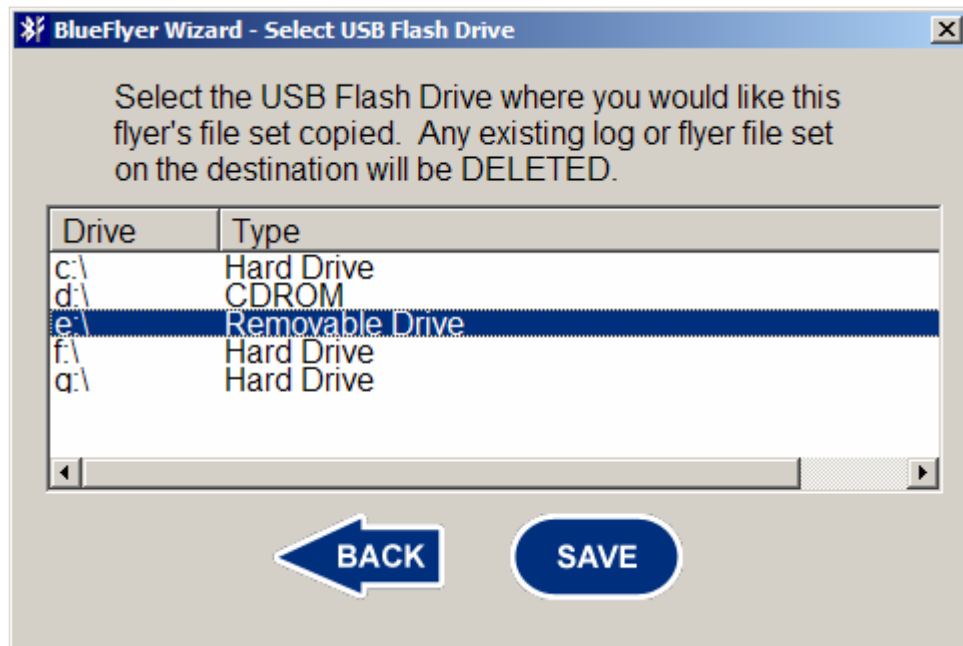
The power level of either the TRENDnet or AIRcable Bluetooth transmitters can be adjusted. A power level of 100 is full power for the device. This can be reduced by dragging the power level slider. Default power level is 100%. Select the desired power level and click the Next button.



After the configuration options have been selected, the USB flash drive which will be used to configure the BlueFlyers unit needs to be selected. Be sure the USB flash drive is plugged into an available USB port on the PC. If a USB device is found that contains the proper directory structure that is used by BlueFlyers, then it will be shown as selected. A different device can still be chosen. To choose a device, click on the drive that corresponds to the USB flash drive which will be used to configure the BlueFlyers unit. The Save button will be disabled until a device is selected. **The files currently stored on the selected USB flash drive's /private, /public, and /radio directories will be overwritten with the new configuration information.**



Once a device is selected, the Save button is enabled. Click the Save button to store the flyer's file set and BlueFlyers configuration information. This flash drive will be used to configure the BlueFlyers unit.

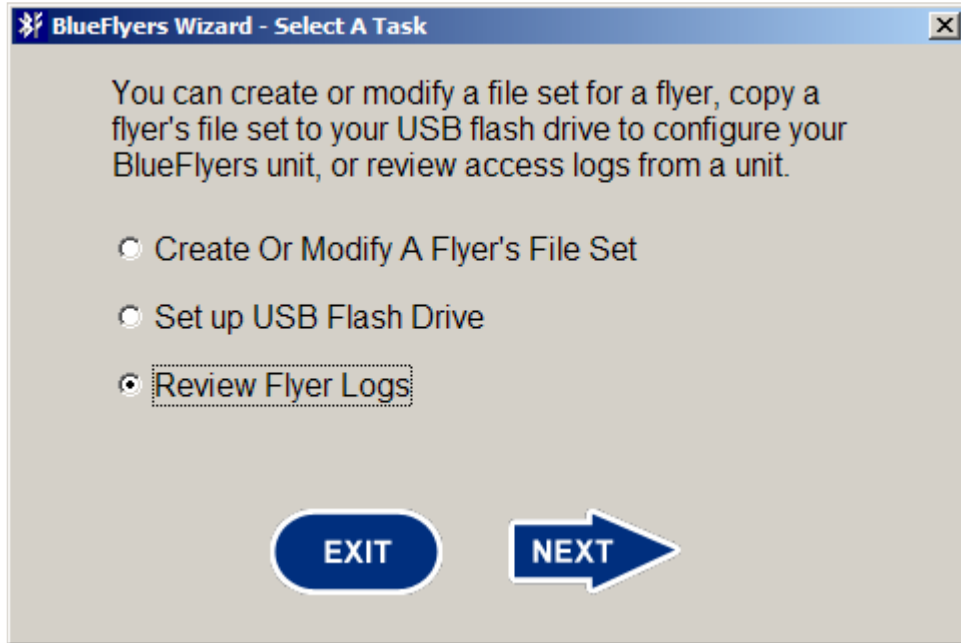


The USB flash drive can now be used to configure the BlueFlyers unit.

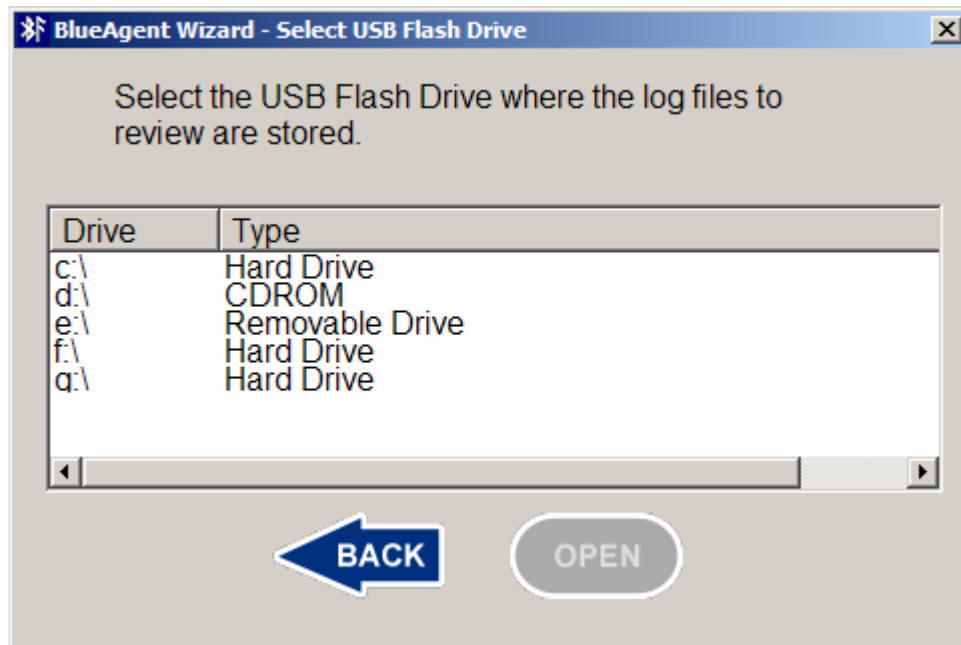
Logs

Log files are copied from the BlueFlyers unit to the USB flash drive every time the unit is configured using the flash drive. **Any existing log files that were previously copied to the USB flash drive will be over written.** These log files contain information about flyers that were downloaded using Active or Passive mode transfers. They will not contain information about FTP mode transfers to customers. The logs also contain information about the systems operational status. The logs may be useful if a problem is encountered with the unit.

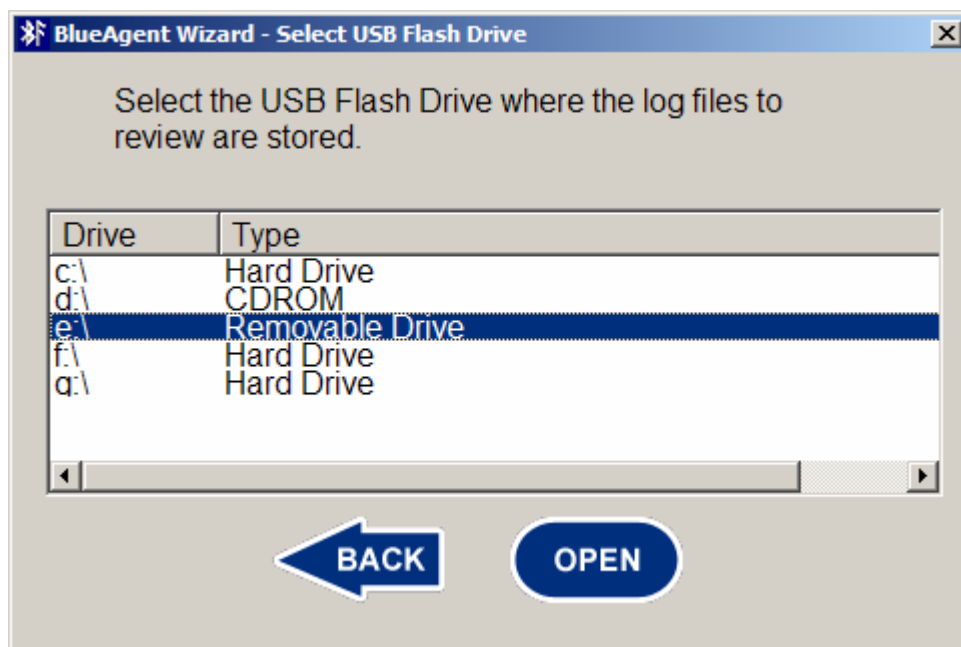
The BlueFlyers Wizard allows easy viewing of the information stored in the log files. To view the logs that were copied to the USB flash drive by the unit, plug the flash drive into the PC and start the BlueFlyers Wizard. Click the radio button next to “Review Flyer Logs”, then click the Next button.



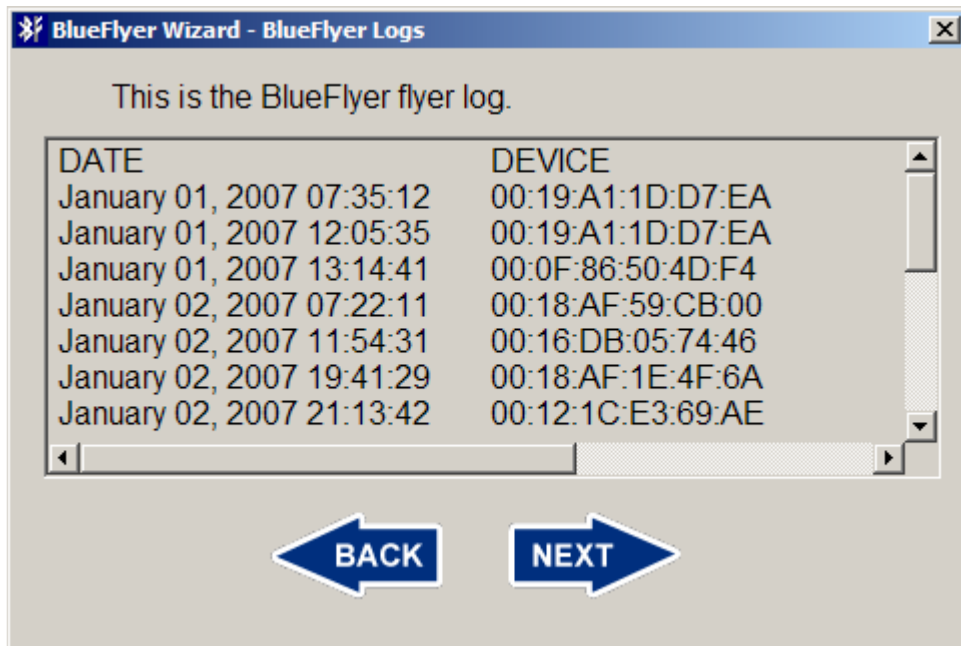
Be sure the USB flash drive is plugged into an available USB port on the PC. If a USB device is found that contains the proper directory structure that is used by BlueFlyers, then it will be shown as selected. A different device can still be chosen. To choose a device, click on the drive that corresponds to the USB flash drive that was used to configure the BlueFlyers unit and contains its logs. The Open button will be disabled until a device is selected.



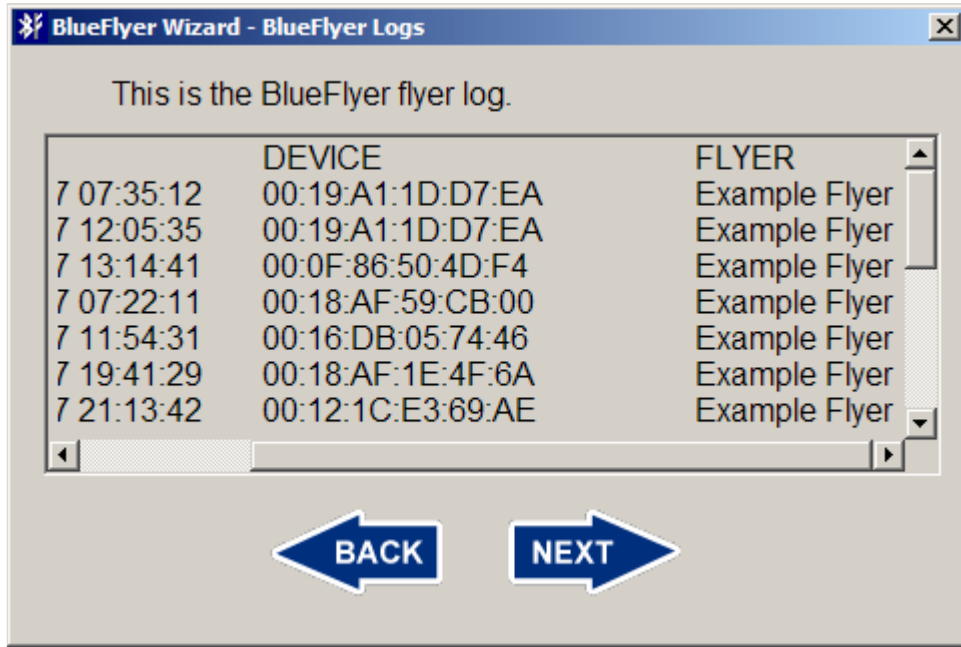
Once a device is selected, the Open button is enabled. Click the Open button.



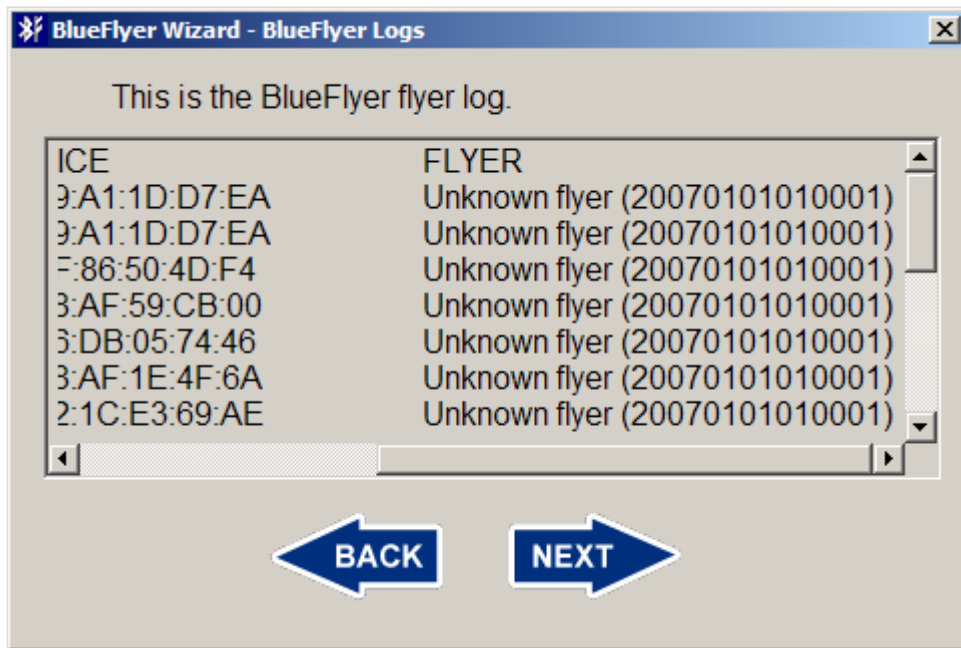
The first log shown is the flyer download attempts. These are the Active and Passive downloads; FTP downloads are not included. Three columns of information are displayed. The first column contains the date of the flyer download. The second column contains the Bluetooth device's unique ID. This information is not traceable to a particular person; it is only used to uniquely identify the device.



Use the scroll bar at the bottom of the screen to view the third column. This column lists the title of the flyer that was downloaded. This title is the one provided when the flyer's file set was created. If the BlueFlyers unit has been used for multiple flyers without clearing the logs, then downloads from multiple flyers may be present in the log.

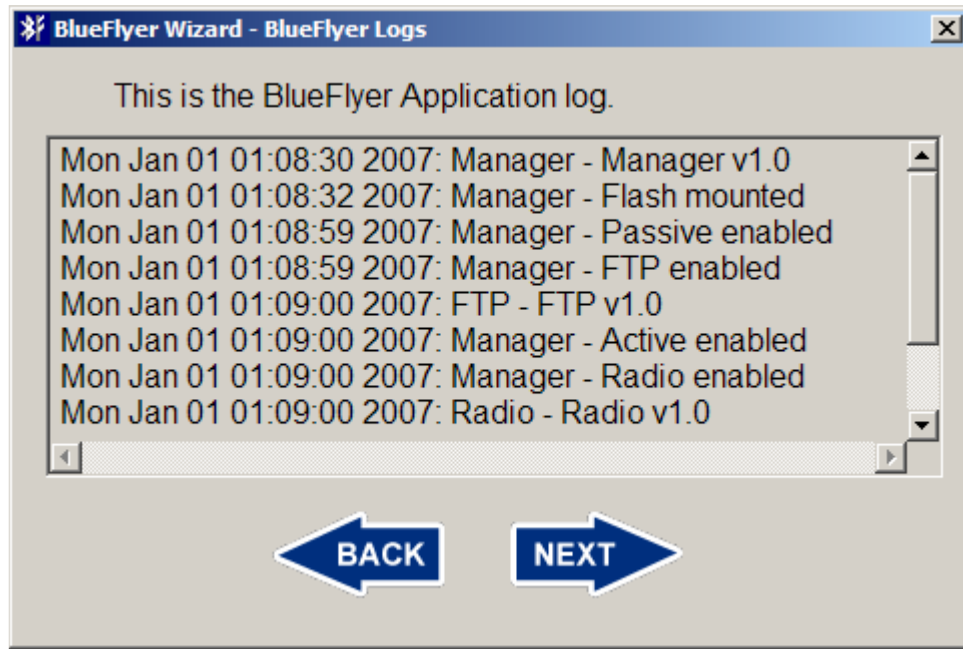


The BlueFlyers Wizard assigns a unique ID (a time stamp) to each flyer when the flyer's file set is created. This ID is stored on the computer and is stored in the log file by the BlueFlyers unit. When viewing logs, it is used as a reference to determine the flyer's title. If the flyer no longer exists on the computer, then the title cannot be determined. The title will be listed as "Unknown flyer (*UniqueID*)", where the UniqueID is the ID number assigned to the flyer.



Click the Next button when finished reviewing the flyer download attempt log.

A system log is also stored and provided. This log contains information from the BlueFlyers' applications. The applications will write information to this log when they start, including version information. They will also write information if an error is encountered or a special function, such as a software update, is performed. Click the Next button when done reviewing this log.



Audio Recordings

Use the Help menu on Audacity to learn how to use the provided audio software.

Hardware

Setup

The BlueFlyers consists of a base unit, a power cord, a Bluetooth transmitter, and an optional FM transmitter.

For the TRENDnet Bluetooth transmitter, plug the transmitter into an available USB port on the base unit. Select a USB port that allows the antenna to be extended vertically.

For the optional AIRcable high power Bluetooth transmitter, connect the provided USB cable to any available USB port on the base unit. This cable has different

connectors on each end. Be sure to use the end of the cable that mates with the USB ports on the base unit. Connect the other end of the USB cable to the AIRcable Bluetooth transmitter.

Connect the provided antenna to the RP-SMA jack on the AIRcable Bluetooth transmitter. Be sure to screw the antenna onto the RP-SMA connector snugly by hand. Do not over-tighten.

To avoid damaging the transmitter, never operate the unit without the antenna connected.

If using an optional FM transmitter, connect the mini-stereo plug from the FM transmitter to the audio output jack on the front of the base unit. Plug the transmitter's power converter into a standard 120V power outlet. The transmitter can be turned on and off using the power switch located on the top of the transmitter, and the desired transmit frequency set using the tuning buttons on the top of the transmitter.

Connect the DC power cord to the power jack on the back panel of the base unit. This power cord has a latching mechanism and the barrel on the end of the cable must be pulled back to release the latch. Plug the base unit's power converter into a standard 120V power outlet.

Put the power switch on the rear panel of the base unit in the ON position. The power switch on the front of the unit can now be used to turn the unit on and off as necessary.

The base unit will take approximately 1 minute to boot. A series of two tones with a rising frequency will be played to indicate the unit is ready to send flyers.

Configuration

Begin by using the provided Windows application to create flyer file sets, audio recordings, and for selecting the BlueFlyers' operating mode. Follow the application's instructions for storing files and configuration information on the USB flash drive. Use of the application is described in the software section of this manual.

Once the proper files are stored on the USB flash drive, the flash drive is ready to be used to configure the BlueFlyers unit. Plug the USB flash drive into any available USB port on the base unit, and turn on the unit's power. After booting, the files will be copied to the unit. A single long beep (1 second) will be played to indicate the files have been copied. This will occur before the two tone series that indicates the unit is ready to send flyers.

The USB flash drive can be removed any time after the single long beep has been played.

Time

The BlueFlyers' time can be synchronized with an NTP server. To accomplish this, connect the BlueFlyers unit to a network that has a DHCP server and an Internet connection, and then boot the unit. The BlueFlyers unit will DHCP when it boots. After booting, it will attempt to synchronize time over the network with a public NTP server. When successful, the unit will play five short tones that increase in frequency. Firewalls or lack of DHCP or DNS servers may prevent the unit from being able to synchronize time.

The unit's time zone can be configured using the BlueFlyers Wizard application. Please refer to the software section for instructions on selecting a time zone.

A network connection is only required if time synchronization is necessary. It is not needed for normal operation.

Audio Tones

Description	Frequency	Meaning
Two short beeps that rise in frequency	440 Hz for ¼ second followed by 660 Hz for ¼ second	The unit is up and operational.
Two short beeps that decline in frequency	660 Hz for ¼ second followed by 440 Hz for ¼ second	The unit is rebooting itself to try to correct a problem.
A long single beep	800 Hz for 1 second	The unit has copied files from the USB flash drive.
Three short beeps followed by a higher pitch beep	3 beeps at 440 Hz for ¼ second followed by 1 beep at 660 Hz for ½ second	The update on the USB flash drive is about to be installed.
Two short beeps	Two beeps at 440 Hz for ¼ second each	Update has finished.
Continuous beeps alternating between two frequencies	Alternating 800 Hz for ¼ second and 1000 Hz for ¼ second	The update could not be performed due to problems with the file.
Short low frequency beep repeating every 3 seconds	220 Hz for ¼ second	Either files to transmit for the flyer or the Bluetooth adapter is missing. BlueFlyers unit cannot start until reconfigured.
Five short beeps that rise in frequency	500 HZ for 1/10 second, 700 HZ for 1/10 second, 900 HZ for 1/10 second, 1100 HZ for 1/10 second, 1300 HZ for 1/10 second	Time has been synchronized with an NTP server

HTTP Server

Each BlueFlyers unit has a built in HTTP server that can be used to remotely configure the unit. The web pages provided by the unit are shown below.

[Public](#) [Radio](#) [Flyer Log](#) [App Log](#) [Configure](#)

BlueFlyers PUBLIC Directory

Connected to 192.168.123.108

Files transferred over Bluetooth

FILENAME	BYTES	REMOVE
blueflyers.jpg	95470	<input type="checkbox"/>

REMOVE **UPLOAD**

To remove files: Check boxes in the remove column of files you want to delete, then click the Remove button. Removal is permanent and files cannot be restored.

To upload new files: Click the upload button, and an upload page will be shown.

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Upload or remove files from the unit's public directory. All files located in this directory will be transferred over Bluetooth. Removed files cannot be restored.

[Public](#) [Radio](#) [Flyer Log](#) [App Log](#) [Configure](#)

BlueFlyers RADIO Directory

Connected to 192.168.123.108

MP3 files played over audio output port

FILENAME	BYTES	REMOVE
blueflyers.mp3	1190825	<input type="checkbox"/>

REMOVE

UPLOAD

To remove files: Check boxes in the remove column of files you want to delete, then click the Remove button. Removal is permanent and files cannot be restored.

To upload new files: Click the upload button, and an upload page will be shown.

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Your Bluetooth Advertising Solution

Upload or remove MP3 files from the unit's radio directory. The files located in this directory will be rotated through and played over the audio output port for FM transmission. Removed files cannot be restored.

[Public](#) [Radio](#) [Flyer Log](#) [App Log](#) [Configure](#)

BlueFlyers Logs

Connected to 192.168.123.108

Flyer Log

```
-- LOG IS EMPTY --
```


Clearing this log is permanent and it cannot be restored.

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The flyer transmission log file can be reviewed, downloaded, and cleared. Cleared logs cannot be restored.

[Public](#) [Radio](#) [Flyer Log](#) [App Log](#) [Configure](#)

BlueFlyers Logs

Connected to 192.168.123.108

Application Log

```
-- LOG IS EMPTY --
```

[CLEAR LOG](#) [DOWNLOAD](#)

Clearing this log is permanent and it cannot be restored.

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The application log file can be reviewed, downloaded, and cleared. Cleared logs cannot be restored.

Public Radio Flyer Log App Log Configure

BlueFlyers Configuration

Connected to 192.168.123.108

BlueFlyers Unit Configuration	
Flyer ID	<input type="text" value="20070101000002"/>
Operational Modes	
Passive Mode	<input checked="" type="checkbox"/>
Active Mode	<input checked="" type="checkbox"/>
Bluetooth FTP Mode	<input checked="" type="checkbox"/>
FM Broadcast	<input checked="" type="checkbox"/>
Network Settings	
Static IP Address	<input type="checkbox"/>
Static IP Address	<input type="text"/>
Static Net Mask	<input type="text"/>
Remote FTP Access	
Remote FTP Access Mode	<input checked="" type="checkbox"/>
Remote Access FTP Port	<input type="text" value="21"/>
FTP Passive Start Port	<input type="text" value="50000"/>
FTP Passive End Port	<input type="text" value="50100"/>
Remote HTTP Access	
Remote HTTP Access Mode	<input checked="" type="checkbox"/>
Remote Access HTTP Port	<input type="text" value="80"/>
Unit Networking	
Unit Networking	<input type="checkbox"/>
Master Unit IP Address	<input type="text"/>
Master Unit FTP Port	<input type="text"/>
Master Unit FTP Password	<input type="text"/>

WARNING: Changing networking options may result in losing remote access to this unit!

SAVE
REBOOT

To save configuration: Enter the new configuration information above, then click the Save button. Your unit's existing configuration file will be overwritten and cannot be restored.

To apply new configuration: Click the reboot button, the new configuration will be used after the unit reboots.

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The BlueFlyers unit can be configured. Please review the BlueFlyers Wizard section of this document for the meaning of fields. Warning: remote access can

be disabled by changing the unit's configuration. After making changes, use the Save button to store the new configuration. The Flyer ID must be updated when new flyer files are uploaded to the public directory. If the Flyer ID is not updated, then the new flyer will not be pushed to Bluetooth devices which have already received the flyer files associated with the current ID. The unit must be rebooted before the changes will take effect.

SUCCESSFUL CAMPAIGN TIPS

1. **Provide clear usage instructions to consumers.** Educating consumers is key to successful downloads. Instructions could be in writing on a display or played as audio from the BlueFlyers unit.
2. Instruct consumers to make sure their phone **has Discoverable or “Find Me” mode enabled.** Without Discoverable mode enabled, some phones will disallow access even when the phone initiates contact and BlueFlyers is in passive mode.
3. **Limit files to a reasonable size.** Bluetooth downloads may take some time and consumers may cancel the process before it completes if the download takes too much time.
4. **Ensure the BlueFlyers’ Bluetooth signal is strong** in the location where consumers are to receive the advertisement. Objects located between the BlueFlyers unit and the consumer will attenuate the signal strength.

TROUBLESHOOTING

1. What FM frequency is available for transmitting in my area?

Try using the radio locator web site to find a vacant frequency. This web site's address is: <http://www.radio-locator.com/cgi-bin/vacant>

2. Why does the FM broadcast have a periodic ticking noise in it?

There may be interference from the BlueFlyers' periodic Bluetooth scans. Move the FM transmitter unit further away from the BlueFlyers' Bluetooth transmitter.

3. Why does the FM transmission sound quiet?

Be sure the input level control on the transmitter is turned up.

4. Why does the FM transmitter turn itself off?

The transmitter has an Auto-OFF feature. This is enabled by holding the power button down for an extended period of time. Turning the unit off and back on clears the auto shut-off.

5. Why does the Bluetooth signal from the unit seem weak?

Make sure that the base unit has a line-of-sight path to the location where flyers will be received. Solid walls and objects will attenuate the Bluetooth signal strength. Using the high powered transmitter, and possibly a stronger antenna on the Bluetooth transmitter will increase the unit's range.

6. Why can't I receive a flyer or a specific type of file on my Bluetooth device?

Make sure Bluetooth is powered on. Some devices may automatically power Bluetooth off.

On some cell phones, such as a Motorola, the phone must be put into discoverable mode ("Find Me") before the phone allows Bluetooth connections.

Some cell phones will not accept certain file types or do not support all fields in a virtual business card (vCard). This may result in a partial file set being received on the phone.

Some cellular service providers limit the types of files that the phone will transfer, even if the phone has greater capabilities built into it. Contact the service provider if you feel that a phone's functionality is being limited.

7. Why can't I view an image on my phone even though I can view images from larger files?

Some phones don't only care about the size of the file in bytes, but they also care about the size of the image in pixels. A large 1500 x 1500 pixel image might compress down to 80 kB using a high compression algorithm, whereas a small 700 x 700 pixel image might only compress to 100 kB using a low compression algorithm.

Even though both files have a low number of kilobytes and may be accepted by a phone, some phones might not display the large 1500 x 1500 image.

8. After downloading the flyer in Passive mode, I cannot immediately download it again, but if I wait a while, I can download it again later. Why?

In Passive mode, the unit will download the flyer to the same device as many times as requested, though it does have a 90 second timeout. After a device has downloaded the flyer, it will not send it to that device again for 90 seconds. This is to prevent unintentional duplicate requests by consumers.

9. Why can't the Compact Flash card be removed from the front of the unit?

The Compact Flash card is not removable.

10. How is an audio recording made?

Audacity, a free recording application, is distributed on the BlueFlyers' installation CD. This tool or other applications may be used to create recordings. The BlueFlyers Wizard does not record audio itself.

11. How is a quality sounding recording made?

Be sure to use a quality microphone and a pop screen to get clean, crisp audio free of wind noise, and smile when speaking to have a bright sounding voice.

12. Where do I get the LAME MP3 encoder needed by Audacity?

Download links are provided on Audacity's website:
<http://audacity.sourceforge.net/help/faq?s=install&item=lame-mp3>

13. Why does the BlueFlyers unit reboot itself?

Be sure the Bluetooth transmitter is properly connected to the base unit. If the software cannot find the transmitter, it will reboot to try to correct the problem.

The BlueFlyers' logs can be reviewed for information about the unit's specific problem.

14. Why doesn't the unit connect to the network after I plug in the Ethernet cable?

The Ethernet cable needs to be connected to unit when it is powered on. Ethernet is only configured when the unit is booting.

15. What is your logo?

Bluetooth was named after a late tenth century king, Harald Bluetooth King of Denmark and Norway. The Bluetooth logo merges the runes analogous to the letters H and B. Following their lead, the BlueFlyers logo adds the rune for the letter F after the Bluetooth logo.

WARRANTY

A limited 1 year warranty is provided with the BlueFlyers. Attempts to remove the CompactFlash card from the front of the unit will void the warranty. Opening the BlueFlyers unit will void the warranty. Removing or tampering with the warranty seal on the bottom of the unit will void the warranty. Damage from moisture, excessive heat, operating the unit without an antenna connected, or other neglect or mishandling of the unit is not covered by the warranty. Units covered under warranty may be repaired or replaced at Embedded Solutions, Inc sole discretion.

Modifying BIOS settings or operational software is prohibited.

TRENDnet TBW-104UB has a 2 year manufacturer warranty.

AIRcable Host XR has a 1 year manufacturer warranty.

C.Crane FM transmitter has a 1 year manufacturer warranty.

EXPORT

This product is subject to the U.S. Export Administration Regulations and other U.S. laws, and may not be exported or re-exported to certain countries (currently Cuba, Iran, Libya, North Korea, Sudan and Syria) or to persons or entities prohibited from receiving U.S. exports (including those (a) on the Bureau of Industry and Security Denied Parties List or Entity List, (b) on the Office of Foreign Assets Control list of Specially Designated Nationals and Blocked Persons, and (c) involved with missile technology or nuclear, chemical or biological weapons).

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